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TRANSACTIONS

OF THE

MEDICAL ASSOCIATION

OF

GEORGIA.

FORTY-SEVENTH ANNUAL SESSION.

1896.

ATLANTA, GA.
PUBLISHED BY THE ASSOCIATION.
1896.

BOSTON MEDICAL
JUN 20 1916
THE FOOTE & DAVIES CO.
PRINTERS
BINDERS
ATLANTA, GA.
CATALOGUED
JUN 2 1916
G. C.

"RESOLVED, That this Association shall not be considered as indorsing views of authors of papers published in connection with the Transactions, unless definitely so indorsed in the Proceedings of the Association.

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Transactions 1873.

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*In consequence of an oversight, Dr. Lloyd has had no opportunity of reading the proof of his article.

†The photographs illustrating Case I. were lost.

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MINUTES OF THE MEDICAL ASSOCIATION OF GEORGIA.

FORTY-SEVENTH ANNUAL SESSION.

FIRST DAY—MORNING SESSION.

AUGUSTA, GA., April 15, 1896.

The Association met in the Richmond County Court-house, and was called to order by the President, Dr. Frank M. Ridley, of LaGrange.

Prayer was offered by the Rev. Lansing Burrows, of Augusta, after which Dr. Eugene Foster, of Augusta, delivered the following

ADDRESS OF WELCOME.

Dr. Foster spoke as follows:

Mr. President, my Brethren:

One of the sweetest, tenderest, most delightful experiences in the life of the true man is that in which he meets a long absent friend. To have this friend grasp your hand cordially, his face lighted up with a smile, plainly telling you of the real pleasure he feels in meeting you once again and fortifying these evidences of friendship by exclaiming: "How are you, old fellow, I am real glad to see you?" What a wealth of joy clusters around the hearts of these friends as they cling to one another, arm in arm, and ask each of the other: "Tell me what you have been doing, what your life has been since last we met." They spend hours together recounting their triumphs and disappointments, their joys and sorrows. They delight to spend every moment possible with one another, and feel saddened when the hour arrives which is to separate them again.

It is in this spirit, my brethren, that I stand before you, commissioned by the medical profession of this grand old city to, for each of them, take every one of you by the hand, press it cordially, look into the windows of your soul, and with emphasis say to each and all of you, "We are real glad to see you." We feel honored at your presence among us; we rejoice over the opportunity to enjoy your society; we feel that your presence is a benediction; we would, if we could, gladly lengthen your three days stay among us into a like number of years; we shall do our best to make you feel at home with us, and shall be real sad when we are forced to bid one and another of you adieu.

Your visit to us on this occasion is fraught with peculiar interest and pleasure. We are delighted to welcome you, not only for yourselves, but for your work's sake as well, for we know that your attendance upon the meetings is not for mercenary motives; that the one purpose overshadowing all others is the attainment of knowledge which shall open up to each of you a wider field of usefulness to your afflicted, diseased fellow-beings. Our local profession anticipates both pleasure and profit in listening to your learned and scientific papers and discussions. We trust that we shall learn much from your wisdom, and after you shall have parted from our meeting, that each of us will have been inspired with the desire and purpose to serve our patients with greater ability and a more unselfish devotion to duty.

Not only do I, as the representative of the medical profession of Augusta, extend to you the most heartfelt welcome which generous hearts can proffer, but I extend a like welcome from our entire population. Our society, our homes, our tables are yours to enjoy as if they were your very own. Seldom is it that so noble, so distinguished, so universally beloved a body of men as yours honors our city with its presence. Speaking for the citizens of Augusta, let me say that this old community, long noted for its wealth, culture, refinement and hospitality, gladly receives you; would surround you with an atmosphere full of welcome. While we are rejoiced once again to meet so many of our friends, there yet, doubtless, comes to each one of you on this occasion, and to none of you more than myself, emotions of sadness. As we look over the faces of friends present, we miss, oh so sadly miss, the familiar forms and the hearty greetings of some of our friends with whom in the days agone, we so delighted to associate. Men whose society was so captivating that the prospect of meeting them constituted one of the chief attractions of our gatherings. I would not detract from your pleasure, yet with me, at every one of our meetings, "remembrance wakes with all her busy train," and I cannot refrain from exclaiming with Tennyson:

"Oh for the touch of a vanished hand,
And the sound of a voice that is still."

Even now the beloved faces of Gray, of Westmoreland, of Hawkins, and other grand men who were leading spirits in our meetings rise up before me and sadden my heart at the loss of their society. Those of you visiting Augusta turn with tender thought to Dugas, L. D. Ford, Eve, Steiner, Coleman, and Campbell, grand, noble men, who once adorned our local profession, who have laid down their life-work and departed from among the children of men—over whose vacant chairs it were but natural that you should pour the libation of a tear. Though absent in the flesh, they are not dead—they live in the hearts of a grateful people with whom they so tenderly, skillfully and unselfishly served—they live in the annals of scientific medicine so gloriously enriched with the fruits of their genius. Though they have departed, the mantles of the prophets have fallen upon younger shoulders and I know you will be gratified to learn that, with one exception, their work as healers of men goes bravely on through sons and grandsons honorably striving to worthily follow in the footsteps of their illustrious predecessors.

While the scientific work of our Association is an important feature, let us remember that it is but one of the objects of our society. We but too often forget that one of the three objects of our Association is the promotion of professional brotherhood. This object of our body is the one most needful. The scientific work of our members can be carried on individually, and through medical literature reach a larger audience than when published in our transactions; but yokefellows in the same calling should become as intimately known to one another as possible.

Bring them together year after year and they become known to one another, learn to respect, admire, love each other. You thus draw men from retirement who would never have met, and you lead them into interchange of sentiments and opinions. In the social gatherings and around the festive board undue self-esteem vanishes, narrowness and selfishness melt like snow before the warm sunshine, and brings to the surface the better qualities of our hearts. An association which does not develop the higher and better qualities of its members is an ignominious failure, be the association of whatsoever kind it may. In an association of doctors, men whose daily work is that of tender, unwearied service to suffering humanity, selfishness has no place—they must of necessity be a band of brothers contending one with another only to demonstrate who best can serve and best agree. Thus and thus only is it possible to establish warm, generous friendships one for another. Emerson truly says: "The highest compact we can make with

our fellow is, Let there be truth between us two forevermore. . . . It is sublime to feel and say of another, I need never meet or speak, or write him, we need not reinforce ourselves, or send tokens of remembrance; I rely on him as on myself; if he did thus or thus, I know it was right."

It must have been such experience as this which inspired Plato to declare: "True friendship between man and man is infinite and immortal!"

I rejoice to be able to say that many, many such friendships are known to me to exist in the Medical Association of Georgia. Of such men, meeting one another year after year, it is not too much to say that our reunions are, in Methodist parlance, veritable love-feasts.

Speaking for myself, I rejoice to say that some of the tenderest, noblest, sweetest friendships which have ever blessed and brightened my life began in this Association, have grown stronger, tenderer, holier year after year until they matured into perfect confidence—perfect love. I never meet any one of these friends but that it rejoices my heart, inspires me to a desire for a higher, better life that I might be like them—as perfect types of manhood as is permitted unto mortals to attain.

The third object of our Association is to organize the medical profession of Georgia in the most efficient manner possible. Organize for what? Selfish gain? Perish the thought. The object and result of organization is self-denial—the sacrifice of individual interests to the good of all. Of all callings in life it is most necessary that doctors should organize themselves into societies. Why? The welfare of society is so intimately blended and interwoven with the best interests of the medical profession that every measure calculated to promote the dignity and welfare of our guild reflects equal, if not greater, benefit upon the public. When our organization contends for a higher standard of professional qualifications and ethics on the part of our members who but the public is benefited? It is only by organized efforts that our profession can efficiently serve the best interests of the people, and therefore every man, woman and child in Georgia becomes the direct beneficiaries of our labors. The high and sacred code of medicine gives no place to selfishness nor cupidity, and every article in this code is to the direct and positive benefit of the public. Without organization individual interests become the supreme law; under organized effort the public interests become the higher code.

This Association, my brethren, is and has ever been a pillar of strength to the profession of medicine in Georgia, and a bulwark of protection to every citizen of our commonwealth against the

villainies of charlatanism. This Association has ever been loyal to the highest and best interests of the public even when self-sacrifice was demanded as a penalty. Knowing and deploring the frightful burden of sanitary laws, this Association labored, in season and out of season, with our Legislature to organize and properly equip a State Board of Health. The effort was successful and for two years the people of Georgia had a State sanitary organization. But the Potiphar Pea-greens killed the board as success was about to crown its work. What a picture! The medical profession of Georgia manfully striving to lessen the burden of unnecessary disease and death upon our people (and to the extent that the effort became successful the financial interest of our guild sacrificed) yet the great State of Georgia, through her so-called assembled wisdom, solemnly decided to let unnecessary disease and death spread their blighting pall over our people rather than expend $5,000 annually from the State treasury. But you have been loyal to your sacred trust as guardians of the public health. Over and over again you have sent committees to the Legislature protesting against the outrage of continuance of State neglect of the health of the people of Georgia, and asking that the board be reestablished and properly equipped. Our efforts have been but love's labor lost, yet we are comforted with knowing that this outrage upon our people was perpetrated and continued over the protest of the Medical Association of Georgia.

For decade upon decade, through the blindness of our lawmakers, Georgia was a veritable paradise for quacks, and these scoundrels plied their nefarious work under protection of a law which was so formed as to protect instead of punish them. For twenty-five years we labored in vain with lawmakers to make it impossible for the quack and the ignoramus to longer ply their vocation in our commonwealth. Discouraged, disheartened, we almost gave up the fight. But three years ago, under the lead of a few hopeful, dauntless doctors in our Association, the fight was renewed, and every reputable physician in Georgia joined heart and hand in the effort. Our bill was defeated, but nothing daunted, our committee renewed the fight at the next session of the Legislature, and this time victory perched upon our banner. Through your efforts quackery is a crime in Georgia, and mountebanks no longer invade our State. But your efforts stopped not here. Very properly you demanded of the medical colleges higher medical education on the part of their graduates. The medical colleges of the State joined in your efforts, and now by legal compulsion the standard of medical education has been elevated to an extent which reflects credit upon our people.

If this Association has never in all its history done anything but wrest from unwilling lawmakers this act for suppression of quackery it would have richly merited the gratitude and praise of every man, woman and child in Georgia. But time forbids an attempt to recall the many efforts at promotion of the public interests at the hands of our Association.

Lastly, gentlemen, no calling or profession in any State in the Union in the last fifty years has given evidence of greater ability than the medical profession of Georgia. I go further, no State has furnished to medical history a grander array of brilliant medical men than has Georgia; indeed, very few can equal her.

Milton Anthony, of Augusta, the foe to quackery, the persistent advocate of higher medical education, the founder of the Medical College of Georgia, was perhaps the first surgeon in the records of medicine to perform a successful removal of lung tissue. Arnold, of Savannah, was one of America's medical savants, and did more than any member of the medical profession to elucidate the diagnosis of that dread malady, yellow fever.

Daniel, of Savannah, was one of the earliest and ablest writers on malarial fevers, and in 1819 invented and published the extension principle in the treatment of fractures of the thigh by weight and pulley. Joseph A. Eve, of Augusta, one of the most renowned of obstetricians, and worker with Milton Anthony, edited with marked ability the ablest medical journal ever published in the South.

Louis A. Dugas, of Augusta, gave to surgery its only certain method of diagnosticating dislocations of the shoulder-joint. But far above this, he gave to surgery, as the fruits of his genius, the principles controlling wounds of the abdomen, and opened up to our profession the possibilities of modern abdominal surgery. Before the International Medical Congress in 1876, he laid down every principle governing the most advanced modern abdominal surgery of this day, and was the first surgeon in the world to do it.

Lewis D. Ford was one of the ablest physicians in America, and did more to properly outline the natural history and treatment of malarial fevers than any other man of his day in the world. Richard Banks, of Gainesville, was the first surgeon in America to extirpate the parotid gland, and was one of the most brilliant and successful surgeons in the United States. Fort, of Milledgeville, gave to the profession, in 1849, one of the best text-books on practice of medicine issued in this country. Paul F. Eve was one of the most original and brilliant among American surgeons. Willis F. Westmoreland was a prince among surgeons and medical teachers. Joseph Jones was one of the ablest practioners and sanitarians in the Union. Battey, of Rome, was one of the most renowned

gynecologists in America, and by invitation of their renowned men, operated in the amphitheaters of almost every medical center of note in Europe. Henry F. Campbell, Georgia's first president of the American Medical Association, earned for himself at the age of twenty-four years world-wide fame as a physiologist by his discovery of the excito-secretory system of nerves. Crawford Long, in 1842, a village practitioner in Georgia, was the discoverer of anæsthesia—that boon to suffering humanity, greater than any other blessing ever conferred upon man.

What a great and glorious record of contributions to medical science from the sons of one State in this vast Union! What a chapter of grand and glorious contributions these grand men made to medical history! The contemplation of their illustrious services to mankind should swell with pride the heart of every member of the association—that we were fellow-citizens of Georgia with the benefactors of our race.

In this day of boasting of higher medical education, let it ever be remembered that to the Medical College of Georgia belongs the proud distinction of having been the first medical college in America to advocate higher medical education. This college put the movement into practice in 1846, endeavored in vain to get the powerful medical colleges of the North to follow its example, and only receded from its advanced position after five years of fruitless endeavor to constrain her more powerful rivals of the North to join in the movement.

Almost every one of these illustrious men—indeed, every one of them alive at the time of its organization—honored this society by holding membership in it. Long live the example of their glorious work and lives!

These great men have many worthy successors among those of our membership yet in life. It would be invidious to name them; yet they are known to all of us. They are honoring their State, their profession, and blessing their fellow-man by their genius and lives of self-sacrifice. In this flood-tide of nineteenth century medicine, this Association holds within its membership some of the ablest physicians, surgeons, specialists, and teachers known to American medicine. The citizens of Georgia, even in some of our villages, can secure from their local profession—members of this Association—medical talent equal to the best obtainable in the medical centers of the North.

Such a body of men must, and do, command the love and respect of all good people, and they are gladly welcomed whenever they honor a community in assembling there.

To you, my brethren—worthy successors of the illustrious physicians whom I have just named—to you, worthy members of the

grandest and noblest of callings upon earth—to each of you, in the name of the medical profession of Augusta, in the name of the citizens of this hospitable community, I bid you welcome, thrice welcome, beloved physicians.

The response to Dr. Foster's address of welcome was delivered by Dr. E. R. Anthony in the following eloquent words:

RESPONSE TO ADDRESS OF WELCOME.

The words of welcome just uttered fall most gratefully upon our ears. Coming, as they do, from the representative of the people of Augusta, they contain the promise and potency of the fulfillment of our highest conception of such cordiality and hospitality as has always been characteristic of Georgia, much of whose glorious past is epitomized in the history of this city, Augusta, a typical Southern city of beautiful homes, cultured society, and glorious memories. Augusta, once the home of my kinsman, Richard Henry Wilde, the prudent statesman, the spotless jurist, the tuneful poet, whose sweet poem was born for immortality; once the home of Paul Hayne, a poet—sad, pathetic, serious—who touched his harp and its vibrant chords found an echo in a thousand hearts and homes.

We have come as a brotherhood, whose hearts are knit one to the other by one common impulse, that of knowing more of truth; here to offer our devotions at the shrine of science; here to recount our own experiences and to hear of the glorious deeds of others. What more suitable place for such gathering of the medical men of Georgia than this city, within whose precincts lies the body of that great pioneer of our art, that leader of men of his day, Dr. Milton Anthony, the memory of whose achievements remains a tonic to faltering hearts, and a stimulant to nerve us to grander efforts and nobler deeds. Here too, is buried that great man, Dr. Henry F. Campbell, whose unwearied exertions in the development of our science and whose brilliant researches in the mysteries of the sympathetic nervous system made for him a reputation that was world-wide.

If the burial-place of the bones of Mahomet make to the Islamite the Mecca of their hearts, so should the bones of the one man and the memory of the other make Augusta the medical Mecca of Georgia.

There are among us here to-day those who have drunk long and deep draughts at the fountain of science, and upon whose brows fame has already placed a chaplet of immortelles. Then, there are those who, by assiduity in this sphere or that of our profession,

have attained a modicum of success and a guerdon of praise. But there is another class amongst us, who are the plodders that, amid literal storms that beat and mountains of difficulty that oppose, are daily answering promptly every call of duty, daily living lives that are made beautiful by such moral heroism, such physical courage, and such exhaustless self-denial as characterize none but earth's greatest heroes. The noble country doctor who, with an intelligent appreciation of the duty, the labor, and the danger before him, sets out to practice medicine, leaves the pleasures of society, and foregoes the calls of ambition to toil among the hovels of the poor, amid the ravages of disease, is a theme for the orator, an inspiration for the poet. Such a character Balzac has given us in his portrayal of Dr. Benassis, such a hero Ian McLaren has immortalized in his splendid creation, Dr. William McClure.

In conclusion, we are here to be helped in our great life-work; here to encourage and be encouraged; here to be the better trained to make life more worth the living to ourselves and our neighbors. And the welcome extended us by this grand old city must needs be associated in memory with every new inspiration, every higher aspiration, and with every new truth, fresh and golden-winged, that each and all of us may receive.

President Ridley then delivered his Annual Address.

Dr. E. C. Goodrich, of Augusta, reported in behalf of the Committee of Arrangements, that the Association would be given an old-fashioned barbecue and, also, a *soiree musicale*.

The PRESIDENT: The next business in order is the report of the Committee on Program. Dr. Jones, the Chairman of the Committee, is absent on account of illness in his family, and his report practically consists of the program for this meeting as printed. I will give these programs to the Secretary and Treasurer of the Association. Dr. Jones has done very efficient service in this connection and the thanks of the Association are due him.

The SECRETARY: Inasmuch as the Chairman of the Committee on Program has been detained from attending this meeting, I would move that we express our thanks for his very efficient services on this committee; also that we sympathize with him on account of illness in his family.

Seconded and carried.

Dr. Westmoreland moved that the program as printed be adopted.

Carried.

The program is as follows:

PROGRAM.

FIRST DAY.—WEDNESDAY, APRIL 15.

MORNING SESSION.—10 O'CLOCK.

Prayer.
Address of Welcome, by Eugene Foster, M. D.
Response.
President's Annual Address.
Report of Committee of Arrangements.
Report of Committee on Program.
Filling Vacancies on Board of Censors.
Application for Membership.

1. The Treatment of Pneumonia, W. J. Mathews, M. D., Middleton.
2. Asthenopia, J. H. Shorter, M. D., Macon.
3. Colles's Fracture, J. B. Morgan, M. D., Augusta.
4. The Importance of Careful Chemical and Microscopical Examination of Urine in Applicants for Life Insurance, W. L. Champion, M. D., Atlanta.
5. Pneumonia, J. L. Lovvorn, M. D., Bowden.

AFTERNOON SESSION.—3:00 O'CLOCK.

6. Tetanus in the Negro, D. H. Howell, M. D., Atlanta.
7 Suprapubic Operation for Fibroids, with Report of Cases, D. D. Quillian, M. D., Athens.
8. Modern Treatment of Skin Diseases, Bernard Wolff, M. D., Atlanta.
9. The Personal Equation in the Use of Forceps, E. R. Corson, M. D., Savannah.
10. The Physician and Life Insurance Companies, W. C. Jarnagin, M. D., Atlanta.
11. Surgical Cleanliness, F. W. McRae, M. D., Atlanta.
12. Some Injuries of the Eyeball, S. Latimer Phillips, M. D., Savannah.

SECOND DAY.—THURSDAY, APRIL 16.

MORNING SESSION.—9 O'CLOCK.

Reading of Minutes.
Application for Membership.

Report of Board of Censors.
Report of Treasurer and Secretary.
Reports of Standing and Special Committees.
Appointment of Auditing Committee.

13. The Administration of Chloroform, L. B. Grandy, M. D., Atlanta.
14. Placenta Prævia, and Report of Cases, J. R. Shannon, M. D., Cabaniss.
15. The Medical Side of Appendicitis, E. H. Richardson, M. D., Atlanta.
16. Some Albuminuric Complications of Pregnancy, Howard J. Williams, M. D., Macon.
17. Drainage in Laparotomy, V. O. Hardon, M. D., Atlanta.
18. Nephritis of the New-born, with Report of Three Cases, W. W. Terrell, M. D., Douglas.
19. The After-treatment of Tracheotomy Cases of Membranous Croup, R. M. Harbin, M. D., Rome.
20. When do Adenoids and Polypi Cause Asthma and Hay Fever? A. G. Hobbs, M. D., Atlanta.
21. Report of a Few Surgical Cases, J. B. S. Holmes, M. D., Atlanta.

ORATOR'S ADDRESS AT 12 O'CLOCK,
R. B. Barron, M. D., Macon.

THIRD DAY.—FRIDAY, APRIL 17.

MORNING SESSION.—9.30 O'CLOCK.

Reading of Minutes.
Application for Membership.
Report of Board of Censors.

22. What is the Best Treatment in Injuries of the Elbow-joint? C. H. Richardson, M. D., Montezuma.
23. Inguinal Hernia, W. F. Westmoreland, M. D., Atlanta.
24. Report of a Few Interesting Surgical and Gynecological Cases, Montague L. Boyd, M. D., Savannah.

ELECTION OF OFFICERS AT 11 O'CLOCK.

25. An Enormous Ventral Hernia Cured by Plastic Operation, Geo. H. Noble, M. D., Atlanta.
26. Treatment of Skin Disfigurements by Electrolysis, M. B. Hutchins, M. D., Atlanta.
27. On the Use of Subconjunctival Injections of Mercury in Certain Forms of Eye Diseases, Dunbar Roy, M. D., Atlanta.

AFTERNOON SESSION.—3 O'CLOCK.

28. Glaucoma in Relation to General Practice, A. W. Stirling, M. D., Atlanta.

29. Information Wanted, S. B. Poland, M. D., Griswoldville.
30. Puerperal Eclampsia as a Result of Albuminuria in the Parturient State, A. A. Smith, M. D., Hawkinsville.
31. A Report of Three Cases, T. E. Mitchell, M. D., Columbus.

Dr. A. M. Phelps, of New York, will read a paper on Hip-joint Disease and its Treatment.

Dr. Samuel Lloyd, of New York, will read a paper on Appendicitis.

The President appointed to fill vacancies on the Board of Censors, Drs. Foster, Westmoreland, and Terrell.

The reading of papers was then proceeded with. Dr. W. J. Mathews, of Middleton, read a paper entitled "The Treatment of Pneumonia," which was discussed by Dr. Duncan.

The Board of Censors reported favorably on the applications presented for membership during the sessions, and the following applicants were declared duly elected :

Dr. Alex. W. Stirling, .	Atlanta, Fulton county, Ga.
Dr. B. J. Clark, . .	Barnesville, Pike county, Ga.
Dr. Robt. M. Lovvorn, .	Bowden, Carroll county, Ga.
Dr. T. V. Hubbard, .	Atlanta, Fulton county, Ga.
Dr. P. L. Hudson, .	Cochran, Pulaski county, Ga.
Dr. B. R. Doster, Jr., .	Blakely, Early county, Ga.
Dr. Geo. A. Wilcox, .	Augusta, Richmond county, Ga.
Dr. Jas. G. Wright, .	Augusta, Richmond county, Ga.
Dr. W. W. Battey, .	Augusta, Richmond county, Ga.
Dr. Henry C. Doughty,	Augusta, Richmond county, Ga.
Dr. Albert A. Davidson,	Augusta, Richmond county, Ga.
Dr. T. E. Mitchell, .	Columbus, Muscogee county, Ga.
Dr. C. C. Stockard, .	Atlanta, Fulton county, Ga.
Dr. J. S. Horsely, Jr., .	West Point, Troup county, Ga.
Dr. A. M. Burt, . .	Sparta, Hancock county, Ga.
Dr. J. C. King, . .	. Newnan, Coweta county, Ga.
Dr. B. C. Powell, . .	Villa Rica, Carroll county, Ga.
Dr. S. T. Ellis, . .	. Rives, Johnson county, Ga.
Dr. J. L. McDaniel, .	Atlanta, Fulton county, Ga.
Dr. W. C. Lyle, .	Augusta, Richmond county, Ga.
Dr. J. A. Guian, .	Conyers, Rockdale county, Ga.

Dr. E. L. Jelks, . Hawkinsville, Pulaski county, Ga.
Dr. Thos. H. Hancock, . Atlanta, Fulton county, Ga.
Dr. Robert W. Fort, . Atlanta, Fulton county, Ga.

Dr. J. B. Morgan, of Augusta, read a paper on "Colles's Fracture," which was discussed by Drs. Elliott, Ford, Taylor, and, in closing, by Dr. Morgan.

Dr. W. L. Champion, of Atlanta, contributed a paper on "The Importance of Careful Chemical and Microscopic Examination of Urine in Applicants for Life Insurance."

Discussed by Dr. Stirling, and, in closing, by the essayist.

The Secretary of the Board of Censors, Dr. Williams, read the following communication relative to the expulsion of Dr. Bullard:

AUGUSTA, GA., April 15, 1896.

To the Chairman and Board of Censors.

GENTLEMEN: I beg hereby to appear before you relative to my expulsion from the Association at its last meeting, inasmuch as I was not present.

Trusting that this will meet your approval, I am

Most respectfully,
W. L. BULLARD.

The Board of Censors replied to the above letter as follows:

AUGUSTA, GA., April 15, 1896.

Dr. W. L. Bullard,
Augusta, Ga.

SIR: In reply to your letter to the Board of Censors of the Medical Association of Georgia, we wish to state that the present Board have decided that the action of the former Board is final.

Respectfully yours,
HOWARD J. WILLIAMS,
Sec'y Board of Censors.

Signed by
CHAS. HICKS, *President*,
W. F. WESTMORELAND,
E. B. TERRELL,
EUGENE FOSTER.

On motion, the action of the Board of Censors was concurred in.

At this juncture Dr. J. M. Hull, of Augusta, called attention to the death of Dr. Lamb, of Augusta, and

moved that a committee of six be appointed to attend the funeral, representing the Association.

Seconded.

Dr. Howard J. Williams moved, as a substitute, that the Association adjourn at the proper time and attend the funeral as a body.

Dr. Hull accepted the substitute, which was carried.

On motion, the Association adjourned.

FIRST DAY—AFTERNOON SESSION.

The Association reassembled at 3 P. M., and was called to order by the President.

Dr. Bernard Wolff, of Atlanta, read a paper on "The Modern Treatment of Skin Diseases," which was discussed by Dr. Hutchins.

The President appointed on the Auditing Committee, Drs. Howell, Noble, and Barron.

On motion of Dr. Noble, Dr. Samuel Lloyd, of New York, was extended the privileges of the Association.

Dr. W. H. Elliott addressed the Association on "Edible Mushrooms."

The Secretary read a communication from Mr. R. E. Park, inviting the Association to hold its next meeting at Cumberland Island.

On motion of Dr. Williams, the invitation was accepted.

On motion of Dr. Williams, the Association adjourned until 9.30 Thursday morning.

SECOND DAY—MORNING SESSION.

The Association was called to order at 9.30 A. M., by the President.

On motion of Dr. Roy, the reading of the minutes was dispensed with.

The President then appointed as an Auditing Committee, Drs. Howell, Noble, and Barron, saying that it was a mistake on his part in appointing the committee on the first day.

Dr. Samuel Lloyd, of New York, read a paper entitled "Appendicitis."

Dr. E. H. Richardson, of Atlanta, followed with a paper on "The Medical Side of Typhlitis or Appendicitis."

These two papers were then discussed jointly by Drs. Elliott, Westmoreland, Wright, Duncan, Holmes, Doughty, Boyd, Noble, Hardman, and, in closing, by the authors of the papers.

Dr. Elliott moved that a vote of thanks be extended to Dr. Lloyd for his extremely interesting and valuable paper.

Carried.

Dr. R. B. Barron, of Macon, then delivered the Orator's Address.

Dr. Howard J. Williams, of Macon, read a paper entitled "Some Albuminuric Complications of Pregnancy."

Dr. R. M. Harbin, of Rome, followed with a paper entitled "The After-treatment of Tracheotomy Cases of Membranous Croup."

Dr. Hull moved that the discussion on Dr. Harbin's paper be postponed until the morning session, and that it be taken up prior to the regular program.

Seconded.

Dr. Noble stated that the regular program could only be changed by a two-thirds vote of the Association, and he thought it was an injustice to the men who were to read papers on the morning of the third day. The Association could, however, meet at an earlier hour for the purpose of considering Dr. Harbin's paper, but he objected to postponing the discussion at the expense of the morning program of the third day.

A substitute was then offered that the program be continued where it was left off.

The substitute was accepted and carried.

On motion, the Association adjourned until Friday, 8.30 A. M.

THIRD DAY—MORNING SESSION.

The Association met at 9 o'clock, and was called to order by the First Vice-President, Dr. W. H. Doughty, Jr., of Augusta.

Dr. J. B. S. Holmes, of Atlanta, contributed a paper entitled "Report of a Few Surgical Cases," which was read by Dr. Eugene Foster, of Augusta, in the absence of Dr. Holmes.

Following the reading of Dr. Holmes's paper, which was not discussed, the discussion on Dr. Harbin's paper was taken up. It was opened by Dr. Duncan and continued by Drs. Stirling, Hardman, and Foster.

Dr. Montague L. Boyd, of Savannah, read a paper entitled "A Few Interesting Surgical and Gynecological Cases."

Discussed by Drs. Noble and Doughty.

Dr. Geo. H. Noble, of Atlanta, read a paper entitled "A Remarkable Case of Enormous Ventral Hernia Cured by a Plastic or Flap Operation."

The paper was discussed by Dr. Lloyd, of New York.

Dr. M. B. Hutchins, of Atlanta, contributed a paper on "Treatment of Skin Disfigurements by Electrolysis."

Dr. Howell read the report of the Auditing Committee, as follows:

To the President of the Medical Association of Georgia:

We, the undersigned committee appointed to examine the books of the Secretary and Treasurer, find the proper vouchers and the books neatly and correctly kept, with a balance of $566.16 due the Association.

We further recommend that the Secretary and the Treasurer be paid $100.00 each for their services.

We recommend that the stenographer be paid such sum as the Association shall decide to be just and proper.

D. H. HOWELL, *Chairman,*
ROBERT B. BARRON,
EUGENE FOSTER,
Auditing Committee.

It was moved that the report be adopted.

Seconded.

Dr. Westmoreland, moved, as an amendment, that the stenographer be paid what is customary, namely, $130.00 for his services.

Carried.

Dr. E. C. Goodrich then read his report as Treasurer, which is as follows:

To the Medical Association of Georgia.

GENTLEMEN: I beg to submit my report for the year:

DR.

To balance on hand as per last report . . . $ . . .	$ 763 51
To amount received during year—	
Dues	775 00
New members	90 00
	$1,628 51

CR.

By amountp aid out as per accompanying vouchers,	$1,062 35
Leaving balance on hand	$ 566 16

Respectfully submitted,

E. C. GOODRICH.

On motion, the report was adopted.

Dr. Taylor read his report as Secretary. The report is as follows:

SECRETARY'S REPORT.

Your Secretary begs to submit the following report:

Since the last meeting of the Association I have paid out as per vouchers shown		$19 49
Received from dues collected	$9 00	
Received from sale of transactions	4 50	
April 10, from advance fee for membership . .	5 00—	$ 18 50
Leaving the Association due the Secretary a balance of .		$ 99

Respectfully submitted,

R. H. TAYLOR, *Secretary*
Medical Association of Georgia.

A pproved:

D. H. HOWELL, *Chairman,*
R. B. BARRON,
EUGENE FOSTER,
Auditing Committee.

On motion of Dr. Duncan, the report was adopted.

Dr. Dunbar Roy made the following report of the Committee on Prize Essay:

To the Officers and Members of the Medical Association of Georgia.

GENTLEMEN: The Committee on Prize Essay beg to report that they have made no further progress than was announced by this committee of last year. The amount—$126.01—reported by Dr. R. J. Nunn, Chairman of the Committee of last year, as being held by the Oglethorpe Savings and Trust Company, still remains in this bank to the credit of Dr. Nunn, with probably a small increase, the interest on the amount.

There have been no essays submitted to your chairman, and consequently the work of the committee has been entirely negative.

Your committee would suggest that the members of this Association be made to have a clearer idea as to what would be the character of these prize essays, and that this be done by giving the subject more prominence at the annual meeting of the Association and in the printed Transactions which follow.

Respectfully submitted,

DUNBAR ROY, *Chairman*,
GEO. H. NOBLE,
A. W. GRIGGS.

Dr. Howell moved the adoption of the report.

Carried.

The President called for the report of the Committee on Necrology, which was passed, owing to the absence of the Chairman, Dr. Love.

The next thing in order was the election of officers for the ensuing year.

The President appointed as tellers: Dr. Taylor, Dr. Hutchins, and Dr. Howell.

The elections resulted as follows:

President, Dr. Geo. H. Noble, Atlanta.

First Vice-President, Dr. J. B. Morgan, Augusta.

Second Vice-President, Dr. R. B. Barron, Macon.

Treasurer, Dr. E. C. Goodrich, Augusta.

On motion of Dr. Hutchins, and in view of the valuable and efficient services rendered by Dr. Goodrich in the past to the Association, his election was made unanimous by a rising vote.

Dr. Goodrich then expressed his thanks to the Association for the confidence placed in him. He said he loved the Association and every member of it, and would try to serve it to the very best of his ability.

Dr. Eugene Foster was elected to take the place of Dr. Hopkins on the Board of Censors, whose term expired at this meeting.

Dr. Foster moved to reconsider the place of meeting.

Carried.

Dr. Westmoreland moved that the next place of meeting be Macon.

Seconded.

Dr. Foster asked whether an invitation had been received from the local profession of Macon. If so, he was perfectly willing to meet there.

Dr. Barron assured the Association that the local profession would gladly welcome the members to Macon next year.

Dr. Westmoreland's motion was then put by the chair, and carried.

Dr. Dunbar Roy, of Atlanta, read a paper entitled "Subconjunctival Injections of Mercury in Certain Forms of Eye Diseases."

Dr. Howard J. Williams offered the following resolution, and moved its adoption:

Resolved, That this Association recommend that its members should not make examinations for life insurance for the New York Life Insurance Company and such other life insurance companies as have reduced their fees. Such a course on the part of these companies justifies the suspicion of financial weakness and unsound business policy. Respectable and conscientious examiners having resigned from these companies, examinations are being made and applicants accepted suffering with grave and well-known diseases at the time of their examination. This being a fact, the effect will be to weaken the safety of these supposed

wealthy companies; bad risks being accepted, the honest policyholder is being imposed upon.

Seconded.

Dr. EUGENE FOSTER: What is the need of this resolution? Mind you, I sympathize with the principle as much as any man in the world, and I am one of the men who have always fought in favor of the principle contended for in this resolution, but I doubt the wisdom of it. I have been a medical examiner for the Royal Arcanum for fifteen years, and always got $5.00 for each examination until some of my professional brethren generously offered to do it for $2.00, and it came to that point finally where I had to do the work for $2.00 in order not to let other men have it. If we are going to take hold of this thing, it should be done all around, and we should not confine ourselves to any one company. It is not good policy. It seems to me that we have just as much interest in one company as another, and we should try to make the rates uniform. I think it would be wise to let the resolution lie over. I do not wish to be understood, however, as fighting the principle of it. In the meantime, we may be able to work up a scheme to cover the whole business. I do not know that this matter properly belongs to the State Association, and it seems to me that attention ought to be given to it by the local profession; in other words, the establishment of prices, fixing charges, is out of the domain of the American Medical Association. These charges ought to be fixed by the local profession.

Dr. WILLIAMS: The resolution is simply a recommendation. It is nothing more than that, and that is the reason why we have drawn it up. The New York Life Insurance Company is the leader in this movement. I think the State Association ought to stand up for the five-dollar fee for life insurance examinations.

Dr. M. A. CLARK: I would like to ask if the resolution is adopted by the Association, whether it will hold the members to it? In other words, a large number of the

members of this Association are general practitioners in towns and villages, and they are appointed examiners for the various insurance companies, and it is a well-known fact that what are termed annual premium companies never did pay $5.00 for examinations. As a rule, the general practitioner has time to make these examinations, and they do not interfere with his other practice. It is frequently an accommodation to his clients, and he makes $3.00 cash. This is a big item with the general practitioner. It does not mean that he makes a less strict or rigid examination than for the company which pays him $5.00. This being the case, I do not see how we can hamper ourselves in that way. I agree with the gist of the resolution, but it seems to me practitioners will have to be governed largely by the companies in their own districts. I agree with Dr. Foster that we had better make haste slowly, and not adopt a resolution which will in any way hamper the members of the Association.

Dr. WILLIAMS: This recommendation is not intended to apply to co-operative insurance companies. It is the old line insurance companies.

Dr. CHARLES HICKS: The class of work exacted by insurance companies is very particular in its character. It comprises the best element of the profession in the State, if properly done. The precedent established by the New York life insurance companies deserves action by this Association, and if the wording of the resolution offered by Dr. Williams is not sufficiently clear for the members to take action, it should be so changed that some conclusion may be reached about medical fees for life insurance examinations. When we consider the fact that the examining fee has been reduced from five to two or three dollars, it seems to me it is a reflection on the intelligence of the profession, and I do not think it just, right, or reasonable for this Association to let this matter go by without action. Whether the wording of the resolution is adopted or not, I hope the Association will pass upon the idea and regulate fees for life insurance examinations.

Dr. O. G. SINGLETON: I do not think it would be wise for the Association to take action on this resolution at this time, for the reason that there are so few members present. It will be better to wait until we have a larger attendance. I think it would be a good idea for the Secretary to write each individual member and get his views on this subject before voting. The question is a very important one, and should not be hastily decided.

The resolution was then put by the chair and lost.

Dr. A. W. Stirling, of Atlanta, read a paper entitled "Glaucoma, in its Relation to General Practice."

The paper was discussed by Dr. Calhoun, and, in closing, by the author of the paper.

The President appointed the following delegates to the American Medical Association:

L. H. Jones,	Atlanta.
W. F. Westmoreland,	Atlanta.
G. H. Noble,	Atlanta.
Bernard Wolff,	Atlanta.
H. P. Cooper,	Atlanta.
F. W. McRae,	Atlanta.
W. S. Kendrick,	Atlanta.
J. C. Olmsted,	Atlanta.
M. B. Hutchins,	Atlanta.
L. B. Grandy,	Atlanta.
Hugh Hagan,	Atlanta.
K. C. Divine,	Atlanta.
J. W. Duncan,	Atlanta.
R. H. Taylor,	Griffin.
E. R. Anthony,	Griffin.
T. J. Coleman,	Augusta.
W. Z. Holliday,	Augusta.
E. C. Goodrich,	Augusta.
E. Foster,	Augusta.
M. L. Boyd,	Savannah.
W. H. Elliott,	Savannah.
R. J. Nunn,	Savannah.
John Gerdine,	Athens.

Howard Williams,	Macon.
K. P. Moore,	Macon.
R. B. Barron,	Macon.
H. McHatton,	Macon.
T. M. McIntosh,	Thomasville.
J. G. Hopkins,	Thomasville.
A. A. Smith,	Hawkinsville.
Moody Burt,	Sparta.
Henry Terrell,	Greenville.
W. A. O'Daniel,	Milledgeville.
W. H. Doughty, Jr.,	Augusta.
E. Calloway,	LaGrange.
F. M. Ridley,	LaGrange.
A.W. Griggs,	West Point.
W. D. Standifer,	Blakely.
B. C. Powell,	Villa Rica.

Personal application of members has largely controlled appointments.

The President-elect was then introduced by Dr. Ridley. Dr. Noble said:

Gentlemen of the Medical Association of Georgia:

I must say that the highest office in this Association coming to me unsought for and unlooked for, is indeed a compliment of the highest order, and I can say in expressing my thanks for the same, that I shall endeavor to bend my energies to make as successful a president as my predecessor has done. I thank you. [Applause.]

The First Vice-President, Dr. Morgan, was also introduced. He said:

I thank the Association for the honor it has conferred upon me. It was totally unexpected, and, I am sure, quite undeserved. I have not much to do in the position I occupy. However, if I can do anything to help further the interests of the Association, it will be gladly done.

Dr. Westmoreland stated that there was an amendment to the Constitution to be acted upon at this meeting, namely, the repeal of Section 4, Article 5, relative to the duties of the President. This section, which is to be done

away with, is as follows: "He shall appoint an orator, whose duty it shall be to prepare and deliver a public address on some subject connected with medicine, or the medical profession, at the next annual meeting after his appointment."

He then moved that the resolution be adopted.

Carried.

On motion, a committee was appointed to revise the By-Laws, and to incorporate the amendments which had been adopted by the Association in previous years.

Carried.

The President appointed on this committee, Drs. Goodrich, Westmoreland, and Williams.

The following papers were read by title:

1. The Administration of Chloroform, by Dr. L. B. Grandy, of Atlanta.
2. Placenta Prævia and Report of Cases, by Dr. J. R. Shannon, of Cabaniss.
3. Drainage in Laparotomy, by Dr. V. O. Hardon, of Atlanta.
4. Nephritis of the New-born, with Report of Three Cases, by Dr. W. W. Terrell, of Douglas.
5. When do Adenoids and Polypi cause Asthma and Hay Fever? by Dr. A. G. Hobbs, of Atlanta.
6. What is the Best Treatment in Injuries of the Elbow-joint? by Dr. C. H. Richardson, of Montezuma.
7. Inguinal Hernia, by Dr. W. F. Westmoreland, of Atlanta.
8. Information Wanted, by Dr. S. B. Poland, of Griswoldville.
9. Puerperal Eclampsia as a Result of Albuminuria in the Parturient State, by Dr. A. A. Smith, Hawkinsville.
10. A Report of Three Cases, by Dr. T. E. Mitchell, of Columbus.
11. Hip-joint Disease and its Treatment, by Dr. A. M. Phelps, of New York.

Dr. Williams offered the following resolution:

Resolved, That the thanks of this Association be returned to the citizens and physicians of Augusta for their bountiful hospitality yesterday afternoon, and also to the ladies and gentlemen who so gracefully entertained the Association at the *musicale* last evening.

On motion, the resolution was unanimously adopted.

There being no further business, the Association, on motion, adjourned to meet in the city of Macon, on the third Wednesday in April, 1897.

ANNUAL STANDING COMMITTEES.

Committee on Publication.

R. H. Taylor, *Chairman*, ... Griffin.
L. H. Jones, ... Atlanta.
Bernard Wolff, ... Atlanta.
E. C. Goodrich, ... Augusta.
V. H. Taliaferro, ... Atlanta.

Committee on Necrology.

Wm. A. Love, *Chairman*, ... Atlanta.
K. C. Divine, ... Atlanta.
Jeff. Davis, ... Toccoa.
J. M. Head, ... Zebulon.

Committee on Correspondence for New Members.

W. F. Westmoreland, *Chairman*, ... Atlanta.
F. M. Ridley, ... LaGrange.
W. E. Adams, ... Greensboro.
J. C. Solomon, ... Flovilla.

Committee on Arrangements.

H. J. Williams, *Chairman*, ... Macon.
H. McHatton, ... Macon.
R. B. Barron, ... Macon.
J. H. Shorter, ... Macon.
W. F. Holt, ... Macon.

Committee on Prize Essay.

C. D. Roy, *Chairman*, ... Atlanta.
A. R. Royal, ... Abbeville.
J. T. Vanhorne, ... Monroe

Committee on Program.

L. H. Jones, *Chairman*, ...	Atlanta.
R. O. Cotter, ...	Macon.
A. K. Bell, ...	Madison.
M. B. Hutchins, ...	Atlanta.
A. M. Burt, ...	Sparta.
J. S. Tankersley, ...	Ellijay.

GEO. H. NOBLE, M. D.,
President.

R. H. TAYLOR, M. D.,
Secretary.

PRESIDENT'S ADDRESS.

Gentlemen of the State Medical Association:

I bid you greeting upon this delightful occasion, amid these delightful hospitalities. I extend to you again my profound acknowledgments for the distinguished honor which you have conferred upon me which places me here. The delivery of the President's Address may be regarded as a purely perfunctory duty, and yet I feel "the hour has come and not the man." I shall be pardoned, I trust, if I encroach upon the prerogative of the Committee of Necrology in a brief allusion to two members of this Association who, since our last meeting, have passed to the silent majority. Dr. Battey, by his normal ovariotomy, his pre-eminent distinction as a physician and surgeon, his high accomplishment as a gentleman and a scholar, brought honor, not only to this Association, not only to the profession of the South, but to the profession of America, and his honored name will endure "throughout the ages to the last syllable of recorded time." Like a lightning flash from a clear sky, death struck nerveless the gifted hand and stilled forever the noble heart of Wm. S. Armstrong. Educated in the best schools of America and Europe, he was a physician and surgeon of unusual accomplishments; as a teacher of anatomy, I verily believe he had few equals and no superiors upon this continent. As a gentleman, he was without fear and without reproach. We miss him to-day as we

> "Sigh for the touch of a vanished hand,
> The sound of a voice that is still."

And now, gentlemen of the Association, it is not my purpose to regale you with stale witticisms or electrify you with commencement or anniversary platitudes. It

shall rather be my soberer task to say something which may redound to the good of this Association, to the happiness and prosperity of its membership.

A late writer has said that "the code of medicinal ethics reduced to its last analysis resolved itself into the 'Golden Rule.'" This aphorism, though not scriptural in its broadest sense, deserves to rank with the choicest utterances of the seven wise men of Greece. Correctly interpreted it implies the strictest justice in our dealings with all mankind, not only in our financial transactions, which belong to a lower plane, but to the avoidance of bickerings and unfair rivalries among members of the profession and among also the different schools.

Much has been said of the "*opprobrium medicorum*," and, unfortunately, it has been too often exemplified. Collins, the English poet, in his ode to the passions, has justly described jealousy as "the worse of the whole tribe," and true it is, the harmony of the profession has been oftener marred and the usefulness which comes of good-fellowship more frequently militated against by this evil than by aught else, so that in an earlier day it had grown to be in some sort a proverb that the animosities of the profession were as bitter as the race conflicts between the Celts and the Saxons and, later on, between the Puritans and Cavaliers.

It has been predicted that when the lion and the lamb should lie down together that war should cease to the ends of the earth. Quite recently the English Liberals in the House of Commons have signified their desire of submitting the matter of Venezuelean boundary dispute to arbitration, despite the ominous threatenings of Salisbury and his Tory cabinet. The war-cloud which extends from sunny Spain to liberty-loving America will be dispelled without bloodshed by the sunshine of conservative, patriotic statesmanship. Indeed, he sadly misinterprets the political horoscope of the twentieth century who believes that even prize-fighting and other kindred abominations will be tolerated another fifty years, nor less that inter-

national disputes will be settled by the arbitrament of the sword.

Unless the great powers of the civilized world shall drift into the barbarianism of mediæval Europe, international differences will not be settled upon the listed battle plain, but rather in some Amphictyonic Council, as were the disputes and differences of the ancient Greek states.

Then, gentlemen, if "peace, the concomitant of advancing civilization, grows on apace" in this enlightened age, why should not we, the very highest representatives of this civilization, illustrate its most beautiful principle, that peace which brings good-fellowship. Good-fellowship is of paramount importance in the profession. By this phrase is not meant the hilarity of the club, or the giddy indulgences of the "great unwashed," but rather where men profoundly versed in art, in science and in literature, as commemorated in the "*Noctes Ambrosianæ*" of John Wilson and his Edinburg compeers, or better still, as in the heart of "good old London," when Joseph Addison and Dick Steele and Alexander Pope met in the "Spectator" club-rooms, in the days of Anne of Denmark, and the first two Georges of the Hanover line; when Marlborough was the idol of the Whig dynasty, and Ramelis and Blenheim were not less conspicuous types of British valor than was illustrated in the early days of the Plantaganets. This ancient fellowship is the good-fellowship to which I allude, the fellowship that elevates, refines and strengthens.

Again, gentlemen, in every era of the world's history money-getting has been the besetting sin of a majority of mankind. This evil has been the bane of humanity, and its reflex influence has only to be measured by its direct.

It has infected all pursuits and professions, and every effort to stay its blighting influence has been ephemeral and transitory.

In our own profession, organization and its varied influences has tended to a higher conception of the surgical

and healing art, it has impelled a recognition of the Apostolic injunction to "do good and communicate," and suffering humanity has a draft upon our services without money and without price, and it is with pride that I proclaim to the world that we recognize "the call of humanity as the call of God."

It was, in other days, the custom of mariners putting forth to sea, to take with them the log-book of some former sailor, in which was engrossed his various accidents and incidents, as well as his successes. With this book before him, the mariner was better enabled to avoid accident and attain that *bon voyage*, even over perilous regions, which experience brings. We are infinitely superior to our forefathers of a century ago, and yet our superiority is based alone upon their successes.

The advancements of this century are due to the successes of another. In a past century Harvey discovered the circulation of the blood. Jenner discovered the vaccine virus, and by it curtailed the ravages of a dread disease and robbed it of its terrors; Priestley discovered oxygen, and thus laid the foundation for the practice of analytical chemistry. Franklin, Prometheus-like, filched fire from the heavens, and, together with DuFay and other electricians, has paved the way for the marvelous achievements which have crowned the matchless life-work of Edison, and made probable the great possibilities of Roentgen and his cathode ray.

This century has advanced. In it Sir Charles Bell has unlocked the hidden mysteries of the nervous system; Galvani has taught us the application of the battery to the treatment and cure of diseases and to the detection of the metallic bases; Koch has discovered that dread bacillus which has destroyed so many useful lives, wrecked so many happy homes, and hangs still like a pall over humanity; Pasteur has taught us how to counteract the dreaded venom of the rabid dog of high and low degree; Lister's antisepsis has almost revolutionized surgery; our own Crawford Long has discovered

the anæsthetic which has made the capital operation of surgery painless to the sufferer; Marion Sims has applied the silver suture, and he, together with Tait and Thomas, *et id omne genus*, has instituted a new era in gynecology. Indeed, gentlemen, time would not avail me to mention one half of the discoveries which have given to medicine and surgery the certitude of the exact sciences. Just as knowledge advances, responsibility increases. The advances of this century, enhanced by recent discoveries and appliances, have increased the obligations of all its practitioners to acquire knowledge, perfect their accomplishments, and lend their aid to the elevation of the profession to that high and perfect plane which, in the near future, must be its ultimate destiny.

Evolutionists teach two doctrines which we do well to heed:

1st. "The survival of the fittest," which we must accept as a maxim.

2d. "The hereditary accumulation of moral increment," which, in this enlightened age, needs no demonstration.

But are we to contribute our *pro rata* of knowledge to the successes of another generation and century? That depends upon the records of this age to show our progress in all the practical and experimental sources of professional increment.

Surely, we are not lacking in any of the elements or means to leave a rich legacy to our professional posterity. Then let us have the manhood to record our failures and the causes, as we publish our successes and the means. This custom would encourage that conservatism which all things demand. It is true that in the enthusiasm of advancement, and, unfortunately in some instances, for self-aggrandizement, the practitioner, as well as the specialist, transcends the bounds of prudence and conservatism, and the scissors, and the curette of the enthusiastic gynecologist, with his long type-written list of successful ovariotomies are presented to us, and the

bistoury of the constitutional laparotomist hangs, like the sword of Damocles, over every appendix. To these invasions there has been called a halt. Public sentiment asks it, humanity craves it, the honor and good faith of the profession demand it.

In conclusion, gentlemen, let us illustrate the principle of "doing unto others as we would they should do unto us." Let us foster that good-fellowship in which there is union, for in union there is strength. Above all, let us preserve inviolate our consciences, for, believe me, "one self-approving hour whole years outweigh, of stupid starers and of wild huzzas."

ORATOR'S ADDRESS.

BY R. B. BARRON, M. D., MACON.

Mr. President and Gentlemen of the Medical Association of Georgia:

It is with a feeling of great diffidence that I undertake the task of attempting to sketch, even in the barest outline, the relations which a man who has anything like an adequate conception of the dignity of the profession in which we here have the high honor of membership, bears toward society. Had I in the beginning appreciated the full significance of the phrase, "The physician as a citizen," I am afraid I should have lacked the temerity to have undertaken the most rudimentary analysis of the subject, and the good friends into whose faces I am privileged to look, and whose cordial greetings, fraternal sympathy and jovial companionship, have set back the hands of time to-day, by many years, would have been spared of what I can assure them will be but a poor and crude treatment of the subject. Unfortunately for you, gentlemen, knowledge of the magnitude of the labor involved, was administered in broken doses, and before the cumulative effects had begun to manifest themselves, so thoroughly was I under the influence of that most powerful of all drugs, compound extract of the fruit of the tree of knowledge—I do not mean apple jack—I could not have withdrawn, even had I so desired.

Few of us even have a full realization of the high character, the almost Godlike nature of our chosen calling. We have arrogated to ourselves some portion of the powers of the Almighty. We have undertaken, along some lines, to act the part of Providence. We have voluntarily challenged to desperate combat, the grim old agriculturalist, Death, whose field is the broad earth, with its bountiful,

never failing crop of mortal humanity always ready for the keen edge of his mighty scythe. We have set unto ourselves the task of holding in check, as well as may be, those tireless, remorseless twin brothers, potent allies and forerunners of the holder of the hour-glass, pain and disease. These things, which come within the scope of the duties of the physician, are as near functions of the Almighty as can be trusted to humanity. Hence I but state the unvarnished truth when I say that our profession is of greater dignity than any other. It is of most use and more absolute necessity to humanity. It confers upon its disciples a more thorough and intimate knowledge of the strength and weakness, the good and the bad points; that which is elevating and that which is debasing in humanity, than can possibly be acquired by any other class of men.

It is an inexorable law of life, that while high privileges and great capacity for enjoyment are granted to the partaker of the treasures of Minerva, there are imposed upon him also grave duties, from the performance of which there is no escape. It is of these duties and privileges as they apply to us, that I propose to speak briefly. In the short space of time alloted to me, and under the conditions which surround this gathering, nothing like even a superficial analysis can be attempted. I shall simply, therefore, call your attention to the bare bones, leaving to each individual an opportunity to demonstrate his proficiency as a literary, scientific anatomist, by clothing the skeleton with its appropriate cover of flesh. I have no doubt that a neat sum could be brought into the treasury if all these creations could be disposed of to an enterprising dime museum manager. It would be a waste of time to go into any elaboration of the code of professional ethics. The relations existing between the profession and each of its component parts, are quickly and thoroughly learned by even the neophyte if he cares to learn them and follow them. Moreover,

the physician as a physician, has only a general—a correlative value in the analysis of the physician as a citizen.

Right here I propose, at the risk of digressing somewhat from the main line of thought, to present one or two ideas as to the qualifications necessary in the composition of a man worthy of initiation into the most sacred mysteries of our calling.

I lay down the proposition that no man is capable of having that full knowledge of humanity in all its complex phases, which is an absolute prerequisite to the attainment of the fullest measure of success from a professional point of view, who is not in fact an idealist. No man who honestly accepts the dogmas of materialism can, in my judgment, hope to participate in the highest pleasures possible to the disciples of Æsculapius, because he can never be so successful in the never-ending battle with our common and untiring enemies—pain, disease and death—as is his fellow whose faculty of imagination permits him to conceive and know of things which are not apparent to his senses.

I know this proposition is somewhat novel and will be vigorously denied by many members of the profession. It is nevertheless perfectly plain to my mind, and without going into any minute analysis on this point, I will content myself with this brief statement, which I believe warrants the conclusion I have reached:

We all know that a very considerable proportion of the ailments which demand our attention have, so far as they are revealed by medical knowledge of the present day, no real existence. They are directly due to some as yet inexplicable derangement of the patient's faculty of imagination and can only be reached and cured by setting that impalpable and mysterious faculty right.

I have never yet seen an explanation, or proof even, of the existence of this shadowy function which would stand the test applied by the materialist formula. That it does exist, however, we all know. We further know that if it was not only real but of a decidedly active turn of mind,

with an insatiable appetite and abnormal capacity for work, many a physician now sleek, well fed and prosperous, would either starve to death, or avoid that dread fate by turning his energies to some other line of work than the practice of medicine. The honest materialist must be unable to admit the reality of an ailment due to no cause, which is not susceptible to scientific demonstration, and hence is unable to establish that bond of sympathy between himself and his patient necessary for the successful treatment of this large and most important class of ailments. He must, therefore, find himself at a disadvantage as compared with his less practical brother.

I lay down this further proposition: No man can be fully qualified for membership in the brotherhood who looks upon his profession as a purely business calling and whose only motive in its practice is in the cash returns, I am indeed inclined to doubt if such a man should be admitted to the outer court of the temple. He cannot be honest with the profession, his patient or himself.

Do not understand me as having the very slightest tinge of contempt for the financial end of the practice of medicine. Quite the contrary, I have the very highest respect for the output of "Uncle Sam's" mints and engraving establishments. I have very grave doubts if any of you more keenly enjoy the receipt of a fat fee than I do, or feel so little compunction in pocketing just as large a sum "as the traffic" will bear. Money is a good thing. It makes other things than the traditional "mare" go. While I will admit, as a matter of theory, that it is possible to get too much of it, I am not prepared from personal experience to designate the point when "too much" applies, and in this I do not think I am peculiar among my professional associates in Georgia.

Nevertheless I maintain that money is, with the true physician, a secondary consideration. That the real incentive for the best work with those practitioners who achieve success in the line of the object of our work, is that broad humanitarianism, which impels with resistless force these

commissioned agents of God Almighty to relieve the suffering, to stay the pangs of agonizing pain, to fight to the bitter end humanity's implacable and unconquerable enemy, death, regardless of any other consideration.

This attribute, together with an ardent lasting affection for his profession and an insatiable thirst for such knowledge as will better equip him for his glorious work, must be the crowning force behind the efforts of the true practitioner. Money is an incident, I grant you—an incident which should be, and generally is, closely looked after; but only an incident after all.

It was necessary that I should have advanced these propositions, for upon them, together with those universally accepted dogmas of the profession, are based my ideas of the places in the ordinary relations of life, which, of right, belong to the physician.

The first—because the most important branch of this subject—I desire to suggest to you, has to do with a duty of vital urgency, which the profession owes to itself, and which demands radical action, if we are to be true to our duty and to our patients. That is the raising of the standard of the profession by making it as nearly impossible as may be for incompetent men to gain the honor of admission to its ranks. I most earnestly wish some powerful legislative enactment could be passed which would cleanse the professional system of the unhealthy secretions due to the presence of a dangerous number of half-educated, wholly incompetent men, who have been granted the right to masquerade under the title of M. D., and whose pretensions to act as healers of the ailing is a dangerous menace to the physical welfare of the community —whose recognition by men worthy of their calling gives the color of truth to the ghastly gibes leveled at us. I will not be disputed when I make the statement that the medical profession is cursed by an undue proportion of alleged physicians, who can make no diagnosis which does not indicate calomel, quinine, salts, or some other drastic and powerful drug, good enough in its way, but

the indiscriminate use of which is as obsolete and as destructive to human life as phlebotomy, that great specific for every ill to which human flesh is heir, from apoplexy to smallpox, of the medical practitioner of the dark ages, who, to his lancet and bowl, nauseous draughts and necromantic charms, stock in trade for the cure of bodies, added the lather brush and razor of the tonsorial expert; and who found his highly honorable calling of barber much more profitable and higher in the social scale than the side line, so to speak, of physician.

When the two callings began to differentiate, it is a great pity that the line of cleavage was not absolutely marked by the natural fitness of the individual for that part of the business he decided to follow. Unfortunately, however, this was not so, and up to this time many gentlemen who would have perhaps made superb barbers, are wasting their time and killing their patients under the delusive idea that they are physicians.

This is a real evil, and we all know it. Even now the practice of medicine is not, by any means, an exact science. Constant and rapid progress is being made towards that most desirable end, and it is not at all improbable that the development of the Roentgen rays will make diagnosis infallible; will enable the diagnostician to distinguish between cramp colic and peritonitis, watch the progress of phthisis or appendicitis with as much ease as he can now follow the development of the comma-bacillus or Edson's ptomaines. Not only the vast increase in the volume and complexity of medical knowledge, but the most important fact that the mistakes of the medical fraternity are irreparable and include the taking of human life, imperatively demands of him a higher education and a more comprehensive and exact knowledge of all the subjects which come within the range of his practice than is required of the members of any of the other professions.

Realization of this fact is spreading, and the time is coming when the course of study prerequisite to conferring the degree of M. D., will be of such a character that

only men who are thoroughly imbued with an honest love for the profession itself, will have the determination to perform the enormous labor involved, and only those who have the solid mental training to start with, and the high mental qualities required, will be able to achieve success. Johns Hopkins has made a beginning, and I, for one, give to the management in charge of that school the credit and honor that is due for requiring of their matriculates in the medical school, that they must be graduates of some recognized college or university. Harvard has also the same requirement that goes into effect soon, and other great universities will soon fall into line. Under this system, too, the energetic physician, beginning his education where it is now customary in many of our medical schools to leave off, has before him a course of study thorough, exhaustive, and calculated to discourage any but the most earnest men. A diploma from these institutions will mean something. Its holder will be licensed to cure, not to kill, and the ghastly jokes of the professional humorist, coupling the undertaker and the physician, now, unfortunately, having too much foundation, will lapse into a state of "innocuous desuetude," and will no longer find a market.

As it is now, a raw boy, with only a rudimentary education, whose mind, without discipline or training, is utterly incapable of absorbing and digesting the great underlying truths of medical science; who, by dint of repetition, memorizes the theorems and axioms of the profession and retains them, so that at examination he can repeat them by rote, though to him they are simply meaningless combinations of words; who clumsily uses the dissecting-knife a time or two, walks the hospital in a perfunctory way for a few days or weeks, and is then turned loose on a helpless public which has never injured him, and blunders along in his haphazard, ignorant career, dosing and drugging his victims, as he guesses may be for their good, killing oftener than he cures, flatters himself that he is a practitioner of medicine, and the

public blindly accepts him as such, and we who know and whose sacred duty it is to protect the community from such bloody bunglers, sit with our fingers in our mouths and permit the work of destruction to go on without protest, bearing in part the odium his ignorance entails on the entire profession, excusing ourselves by softly repeating the pertinent question of Col. Cain, reported by the late lamented Moses: "Am I my brother's keeper?" This evil can in some part be corrected within the profession. The medical colleges can do their part by raising the standard of their curriculums; the medical societies can establish a higher test for the recognition of practitioners, but only the State itself, through a vigorous exercise of its right to protect the life and welfare of the citizen, can apply a thoroughly effective remedy, by requiring a rigid and thorough examination of every applicant for license to practice medicine, and providing a heavy penalty for practice without license.

This naturally leads to the consideration of the proper place of the physician in politics. Here again, I find my ideas will provoke criticism from the conservative. I make this statement, heterodox as it may be deemed, firm in the belief of its absolute truth. It is one of the most imperative duties of the physician to take an active interest in politics, local, State, and national. I do not mean that he should only keep in touch with current thought on economic questions, or simply register and vote on election day. I mean this, it is true, but my idea goes much further. In common with all good citizens, but in a much higher degree, the physician who measures up to the full requirements of the profession, as I view it, should take an active hand in the practical management of political affairs. He should make himself felt in party organization, in primary political action, in the election of those to whom the people intrust the details of the management of their joint affairs. I base this proposition, first, on the broad statement which I do not believe can be successfully contradicted, that under our republican

form of government, a most potent influence is exerted over every phase of the existence of the citizen, individually and collectively, by governmental policy and management. The State has been commissioned to perform many of the vital functions necessary to the welfare of society, which in the past, have been exercised by the church, or by individuals alone, or, in combination. Hardly any part of the life of the citizen is not indirectly influenced by some act of government, and unless the direction in which civilization is steadily and rapidly progressing is changed, the day is not far distant, when there will be no exception to this rule.

It is therefore of absolutely vital importance that the direction of governmental affairs should be as nearly as possible, potently influenced by the most intelligent, enlightened, and unselfish element in the community. Through a mistaken idea of the character of "politics" in its true sense, and ignorance of the patent truths I have stated, and the curious psychical phenomenon, the offspring of pure selfishness—manifested during the early days of Christianity in the lives of the hermits—that the proper way for a man to live a pure, godly life, acceptable to God the Father, and Jesus Christ his Son, was to isolate himself from human companionship, and spend his time at somebody else's expense in the pleasant contemplation of his own great goodness, and the wickedness of every one else, and which in somewhat different form still prevails, the affairs of State and political matters have fallen into the hands, as a general rule, of those least competent to properly perform the necessary work, instead of being taken in charge by those best fitted to exercise the trust properly. To this fact may be traced, I believe, a vast majority of the ills, mental, moral, and *physical*, the existence of which almost seems to justify pessimism.

These facts admitted, the truth of my proposition, that it is a high duty incumbent upon the true physician to go actively into politics, cannot be denied. I claim no more than is justly due the profession of which I am

an humble private in the ranks, when I say that no class of men can exert a more powerful and more beneficent influence in the shaping of governmental policies than can the physicians. Let us see what basis exists for this daring claim. In the first place, I have shown that a higher degree of education, a more comprehensive grasp of detail, a more thorough power of dissection, analyzation and generalization of abstract propositions as to natural laws, a more imperative necessity for exactness, an unusual faculty of combining conservatism in investigation, and fearless courage and promptness in action, are required of the physician than of the initiate in any other profession. The aspirant for *legal* honors may, without special training, read a few volumes of law and gain admittance to the bar; he may in time become a lawyer, gaining knowledge with his practice. His mistakes are simply disastrous to his clients' pockets, and no harm is done. Where in the preparatory stage the embryo lawyer spends months, the aspirant for medical honors spends years. Where the mistakes of the youthful lawyer costs only money, the mistakes of the young doctor costs health and comfort, or maybe even life. The contrast is even greater between the requirements necessary to enter the medical profession and that of the church. Hence the physician is by superior knowledge, by his ingrained habit of basing action on certainty, as near as can be, pre-eminently calculated to exercise a beneficent influence on public affairs. Again, no class of men, professional or otherwise, are in closer touch with the great mass of the people. The relations existing between the family physician and his patients are closer, more confidential, freer from restraint, than can be claimed for pastor, lawyer, or friend. He is the enemy, the conqueror of pain. Into his hands are intrusted the lives of loved ones. His skill is depended upon to preserve the life and health of the infants, to soothe and comfort the suffering, and this alone establishes a bond of sympathy beyond the reach of any other relation,

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save those of family. He is not only the healer of the ills of the flesh, but must minister "to the mind diseased." He is the confidant and adviser, the helpful, sympathetic friend. It is certain, therefore, that he is in closer touch with the people, he understands more thoroughly their wants and needs, their aspirations and opinions. He is better fitted to impress upon the government those lines of action best calculated to inure to the welfare of humanity, advance the interests of society, and result in mental, moral, and physical health of the individual. He is not only more competent to suggest proper direction to governmental action, but by reason of the confidential relations existing between physician and patient, and the high respect felt for the correctness of his judgment, he has far more power to enforce the adoption of his suggestions. Yet again, his action in political matters are infinitely less liable to be controlled by selfish motives than are those of the generality of men. His interest in such matters must, in large measure, be more impersonal than personal. From a strictly material point of view, he is far more likely to lose than gain. Political prejudice runs high and political action in any direction is liable to cost patients. No reward is offered by public employment which can tempt a physician worthy of the name. Only the welfare of humanity, the feeling that he has performed his duty to God and his people as best he could, can, therefore, actuate the physician as a factor in politics. His motives are to a high degree unselfish.

With his trained ability to get at the truth in abstract and theoretical problems, his intimate knowledge of the mass of the people, his habitual indisposition to hastily accept unproven conclusions, with its accompanying practice of prompt, vigorous action when necessity requires, the entire lack of motive for demagogy and double-dealing, and his widespread influence in shaping the action of the people, makes his power for good beyond estimate.

Our legislation is largely in the hands of lawyers—young lawyers, as a rule; particularly in Georgia—who have added to general incompetency a woeful lack of knowledge as to the broad, fundamental principles of government, and an absence of touch with, and sympathy for the great mass of the people. The young lawyer in politics has an active selfish interest in legislation. The more involved and indefinite a law, the more necessary the services of a lawyer. The greater the number of contradictory statutes on the book, the richer the harvest of fees. Then the more remunerative and honorable public offices are, they seem at times created with a view to make lawyers eligible to fill them, and instead of a "government of the people, by the people, and for the people," we are gradually attaining, it seems, to a government of the lawyers, by the lawyers, for the lawyers and their clients. With the physician taking as active interest in political affairs as the lawyers, the aim of legislation would soon be changed, so that the controlling influence in all legislative action would be the moral, physical, and mental elevation of the community. The law for the better protection of property would give way to the law for the better conservation of health. The bill having in view the financial elevation of the few would lose its place at the head of the calendar, and in its stead would be found the measure to purify the morals of the community; and so on through the rest.

With the physicians in the lead, the better element in the community (by this phrase better element, do not understand me to mean any class; it is meant to include the right-thinking, right-acting citizens of all classes) will supersede as helmsmen of the ship of state the self-seekers who now shape her course as best to serve their own selfish ends, regardless of the ultimate end of the voyage.

Politician must become a term of honor rather than a stigma; politics would rise to a normal level and would be recognized in its true relation to society—the sum of

all humanitarian effort—the one means through which can be secured answer for that greatest of all boons asked in the Lord's Prayer, "Thy kingdom come . . . . on earth as it is in heaven." And it would be regarded as much of an indication of moral turpitude for a good citizen to fail to give such of his time, energy, and influence as was necessary to political effort—practical political effort—as it is now to neglect to pay his grocer's bill.

As to the physician's religious duty, I shall say but little. There should be an intimate relation between our profession and that of the church, for did not Christ hallow our calling by applying to himself the term "physician"? He was not only a preacher and healer of souls, but of bodies also. St. Luke, the writer of the Gospel and of Acts, was a physician of no mean attainments, and numerous instances are furnished us in the early history of the church of the combination of preacher and physician. Even in the present time, some very worthy brothers of our profession are preachers of no ordinary ability and minister to sick souls, as well as to bodies. Yet you all know that as a class we fall far short of our religious duty, and are sometimes soundly rated, and deservedly so, by the clergy from the pulpit. While I do not wish to palliate our neglect of the church, yet I do say that our excuses are good and many, and we are frequently more justified in the non-attendance than in the attendance of religious service. We are known above all classes of men and professions to possess that greatest of virtues, charity; and I mean not to speak irreverently when I say that, at the last great day, when many of us are standing before the Judge of all men, feeling our unworthiness and, like the publican, not daring so much as to lift up our eyes, amazed shall we be when he asks us not about our professions on earth, and gloriously happy shall we be when we hear spoken in mercy these words: "Come, ye blessed of my father, ... I was sick, and ye visited me."

In other relations of life the duties of citizenship as they affect the physician differ little from the general,

save that the man who sincerely devotes his life to the great duties imposed by our profession must contemplate cheerfully the absolute surrender of the control or direction of his time, day or night Sunshine or storm, arctic cold or tropic heat, sleeping or waking, hungry or surfeited, matters not to him; when the call for duty comes, obedience must be prompt and cheerful. His pleasures must be enjoyed on the wing, as they come. To-morrow has no meaning to him. He lives in the present, and what he does must be done now.

Some good woman must almost break her heart in the effort to accommodate herself to the inexorable fact that the man she loves and into whose keeping she has given her life, can never be wholly hers; that the work to which his life has been consecrated will not surrrender one jot or tittle of its rights to serve the comfort of even a wife. This must be so, for in no work of human life is the truth that man and woman, wedded in heart and soul and body, are essential to the complete human being as with men in our calling. In the family alone can be developed that deep human sympathy, without which failure is, without hardly an exception, certain to overwhelm the physician.

Gentlemen, no man can truly realize the almost God-like possibilities of the profession which we follow without a thrill of pride that he is in the ranks of this army, whose power over the affairs of the world, wisely directed, are almost illimitable, tempered with gravest doubts as to the ability of any merely human organism to measure up to the full height of attainment within the reach of the profession.

We have, if we choose to exercise it, power beyond any other body of men to shape society for good or evil; and God speed the time when we may be able to come to a realizing sense of this mighty responsibility, and set our hands to the work which means the regeneration of the world and the inauguration of the millennium.

TREATMENT OF PNEUMONIA.

BY WM. J. MATHEWS, M. D., MIDDLETON.

This paper has, at least, one commendable feature—brevity.

Pneumonia is no respecter of climates, although more prevalent where the climate is not uniform.

It invades every nook and proves disastrous to twenty per cent. of its victims (according to Loomis).

Considering the malady from that mortality rate, it is one of the most fatal diseases which the practitioner has to treat; hence it should claim our deepest researches into all available literature on the subject, as well as closest study clinically.

As the caption of this paper denotes, it should only deal with the treatment of pneumonia, but I will digress a little to touch upon its etiology. Some authors claim that pneumonia is infectious, and is caused from pneumococci, while a minority, I believe, still hold that it is direct application either through the air-passages or by exposure to cold and damp atmosphere. If the former theory holds good it does seem, at least plausible that the germs generally lie dormant and harmless till influenced by damp and cold atmosphere, converting the lung tissue into a condition which invites the pneumococci to awaken from, perhaps, their long and undisturbed repose to accomplish their direful deed.

In my limited experience I have never seen a case where I thought the symptoms warranted giving the so-called abortive treatment a trial, owing to not seeing patient until a few hours after the prodromic chill, the lung then being engorged to such an extent that I thought my efforts on that line would prove futile.

After being satisfied that I have a case of pneumonia, my initial step is to make my patient as comfortable as possible. To meet this end I first envelop the affected side with a counter-irritant, preferably turpentine. It, as a rule, is in the congestive stage when patient is first seen, and he is generally restless, with decided pyrexia, a stabbing pain caused in a number of cases from pleurisy.

To relieve these distressing symptoms I give a large dose of phenacetine and it generally acts happily, producing rest and free diaphoresis. Should the phenacetine fail to ameliorate these symptoms, I then administer morphine hypodermically—almost invariably use the needle, as I find in a great many cases pronounced nausea, and such cases do not bear the morphia well *per oram*. If my patient is of the sthenic type, a purgative is given; if asthenic, a mild laxative. To reduce high pyrexia, phenacetine is administered in sufficient doses every three or four hours in connection with a stimulant, my purpose being to keep temperature down to about 101 or 102 degrees Fahr., and the phenacetine serves well to meet this end.

I much prefer this drug to any of the coal-tar group, owing to its not depressing the heart when judiciously given.

I am cognizant that some of our eminent brethren venture to use cold water externally to relieve the high pyrexia in pneumonia, and report excellent results. If no other reason restrained me, knowing the sentiments of the laity are extremely against this mode in my section, would bar me from the method were I so inclined (of which I must say I am not yet an advocate). Should I pursue this course and lose my patient, the old women of the community would heap wrath upon me that would follow me as long as I existed, and such expressions as "Doc. sho killed that fellow what had the pneumony," would be a sweet morsel on nearly every tongue.

I am an advocate of the blister and do not hesitate to apply one where I deem it necessary, and have never yet blistered a chest that after doing so I regretted it.

If the milder counter-irritants fail to produce the desired effect, I then blister and it relieves pain and makes patient more comfortable. I am aware that the blister is not as fashionable now as in former days, but I have always obtained good results and shall continue its use. Of course, I do not blister indiscriminately. I rarely find it necessary to use the blister on children, for turpentine, with the cotton batting or oiled silk, generally gives good results, but in case they do not I blister.

I have never met with a case that I deemed advisable to deplete by venesection. To control the pulse, I give veratrum viride every three or four hours with whisky, and in a majority of cases consider this drug indispensable.

One thing of paramount importance is to watch closely the overworked heart. To sustain its action and prevent clot, I prescribe carbonate of ammonia and digitalis, and as soon as it becomes inevitable that the ammonia and digitalis are inefficient to meet this requirement, sulphate of strychnia is then administered hypodermically in one-fiftieth grain doses *pro re nata*, and I have seen marvelous effects from it.

If the patient is disposed to be very restless, I administer by puncture morphine and atrophine or chloral hydrate.

Expectorants do not play a very important factor in a majority of cases, but when necessary I prescribe syrup tolu, syrup wild cherry, paregoric and quinine, and frequently combine the ammonia and digitalis to avoid disturbing patient too frequently.

In the stage of resolution the treatment should be supportive mostly. Alcoholics are nearly always indicated.

I give quinine in tonic doses and if resolution is taking place slowly, give iodide of potash in small doses, frequently repeated.

In conclusion, I will add that in connection with the above, a plenty of fresh air, good hygienic surroundings, nourishing food, and a little common sense has been very

successful in treating pneumonia that has fallen into my hands where it existed *per se*.

The type of which I have spoken is the acute lobar variety.

DISCUSSION ON DR. MATHEWS'S PAPER.

Dr. J. W. DUNCAN, Atlanta: I think the doctor has given us a very excellent paper on the treatment of pneumonia. I would never blister a baby; I seldom blister an adult. In rare cases, in the very initial stage of the disease, a blister may do some good. In cases of pneumonia, in the later stages of the disease, when resolution has failed to take place, we may expect the blister to be of some service. As a rule, it is not needed. I prefer using turpentine, lard and mustard with the batting or flannel.

As regards the coal-tar preparations, I would not give them in pneumonia. I have seen cyanosis produced in other diseases by the continued use of the coal-tar preparations. If you give them in sufficiently large doses to reduce the temperature in pneumonia, you are liable to produce cyanosis. If you have extensive consolidation of lung tissue, you may lose the patient as a result of administering these preparations. I am fond of using veratrum—not in every case, but in many cases it is a sheet-anchor. Many of the younger physicians do not use it. I think it is because they have never tried it. I have resorted to its use for nearly thirty years in the majority of cases of pneumonia that have come under my observation, and I have had excellent results with it, always combining it with paregoric or some other preparation of opium. Later in the disease, I am very fond of using strychnia, either hypodermically or by the mouth. I also, in the early stage of the disease, use a combination of camphorated Dover's powder, quinine and capsicum, about two or three grains of quinine and of Dover's powder, and one grain of capsicum, as is needed, repeated every three or four hours. In the course of ten hours the patient is slightly influenced by the dose, and rests fairly well.

Later in the disease it is sometimes wonderful what effect large doses of iodide of potash will have on the patient.

Dr. MATHEWS: Dr. Duncan misunderstood me when I read my paper. I did not say that I would blister an infant. I never do so, although I would as a last resort. I had a case about six months ago where I thought it was necessary to use a blister, and did so.

COLLES'S FRACTURE.

BY J. B. MORGAN, M. D., AUGUSTA.

The diagnosis and treatment of fractures generally are of as much, or more interest to the general practitioner than they are to the surgeon. By far the greater number of all fractures are treated by the doctors in general practice. The most common and frequent one with which we have to do is that of the lower end of the radius, commonly known as Colles's fracture, its frequency making it of special interest and of great practical importance. The cause is nearly always the same—catching on the hand in the act of falling. In falling, the open hand is thrown out, and the force of the fall is received first upon the palm. This results in hyperextension, or forced dorsal flexion, which is checked by the strong mass of ligaments on the anterior side of the wrist-joint. As this extension is continued by the greater force on the hand, the ligament does not lacerate readily, but through its influence upon the lower end of the radius, this bone begins to yield on its anterior aspect, and as the force is increased, the line of fracture travels upwards and backwards until the fracture is complete. A momentary continuation of the same force will produce the usual displacement, causing the lower fragment to ride backward upon the upper, and frequently causing impaction of the firm posterior rim of the upper into the spongy substance of the lower fragment. From this explanation we would have no hesitancy in calling this a pronounced fracture by traction, and this view is generally accepted; but of late this theory has been disputed and the claim advanced that, during dorsal flexion of the hand, the upper row of carpal bones is forced against the dorsal prominence of the lower end

of the radius, so that the fracture would be due to inflection rather than traction. It is immaterial to our purpose whether the fracture be the result of traction or of inflection.

Why the lower end of the ulna, as a rule, does not suffer injury, is easily understood from the anatomical arrangement of the parts, it having no direct connection with the wrist-joint itself. This fracture of the radius usually occurs about a half to one inch above the articular surface, and is generally transverse. The line of fracture varies within certain limits, but the manner of reposition is practically the same. The diagnosis of Colles's fracture is not difficult. The history of the accident, the characteristic deformity, and pain at the seat of the lesion, point you at once to the character of the fracture. A great deal has been said and written about the diagnosis of this typical fracture; but two points only are necessary to observe, in order to arrive at a correct diagnosis. The marked displacement of the whole hand toward the radial side of the wrist, and the relative position of the styloid processes of the ulna and radius. In the natural condition of the parts, with the arm hanging by the side, the styloid process of the radius is on a lower level than that of the ulna; that is to say, nearer the ground. After fracture, this process is on the same or higher level than that of the ulna. The prognosis of the fracture depends in the main upon the treatment. Colles's fracture always produces deformity—the degree of deformity turns upon the amount of displacement of the broken fragments. A misinterpretation of diagnosis, or if rightly diagnosticated, neglected or improper treatment, will leave permanent this deformity. The first requirement in the treatment is to effect exact reposition. And I wish to emphasize most strongly, that this cannot be done by traction. Those of us who were taught, and have faithfully practiced this method, know how impossible it is. The vast number of permanent deformities from this injury, is an unanswerable argument against its use.

We can readily understand why traction is inefficient, when we consider for a moment the anatomical arrangements of the parts. In the first place, there is no muscle attached to the hand anywhere, that is attached to the radius below the line of fracture; therefore, in making traction at the hand, there are no muscular attachments, by which the broken lower end of the radius can be pulled down into position. This being the case, the only thing that traction could accomplish, by the intervention of muscular attachment, would be to pull the upper and longer fragment of the radius into further displacement or firmer impaction; but the main reason why traction cannot effect reposition of the fractured fragments, is on account of the action of the anterior and posterior annular ligaments during extension. These ligaments are continuous with, and may be regarded as thickened portions of the deep fascia of the forearm. They are strong fibrous bands, arching over the front and back of the wrist-joint, firmly attached to the carpal bones below, and continuous with the deep fascia of the forearm above. The flexor and extensor tendons of the hand pass through and under these ligaments, in close contact with the lower end of the radius, this part of the bone being grooved for their reception. The effect of traction, therefore, would be to lengthen the longitudinal fibres of the deep fascia and annular ligaments at the expense of the transverse fibres. This would cause the ligaments around the wrist-joint to more closely bind the broken ends of the bone, and, more than this, the tendons which pass through and under the annular ligaments are also drawn strongly against the fractured bone, so that we would have a closely applied splint of tendons, held firmly in place by strong flexible ligaments—making replacement by traction impossible. For the greater the extension the more closely will the tendons and ligaments hug the bone, and the more firmly the fragments become fixed in their displaced position. But while traction will not accomplish it, every case of Colles's fracture can be

readily reduced by strong, forced dorsal flexion. This is best done under an anæsthetic, to avoid pain, and produce complete relaxation of the tendons and ligaments about the wrist. It may require several attempts before exact reposition can be obtained, but with a little patience and care it can always be done. The best way to do this is, with the patient's hand in pronation, you grasp his forearm, with one hand, in such a way that while the radius is firmly held, your thumb rests just above the line of fracture. With the other hand, you grasp the hand of the patient, so that your thumb presses firmly upon the back of the lower fragment. The hand is now carried strongly back towards the dorsal aspect of the radius, in forced and extreme dorsal flexion, until you feel by palpation that the lower fragment has become unlocked, and can be pushed into place by your thumbs, while at the same time, the patient's hand, under strong extension, is carried into the normal position. If this manœuvre is properly done, and the fragments accurately replaced, almost any kind of a dressing which keeps the fragments at rest, will give a good result. The peculiar character of the displacement in this fracture, and the constant difficulty experienced in obviating deformity, have greatly stimulated inventive ingenuity, and resulted in a number of specially devised splints. We have the Gordon splint, the Coover splint, the Levis splint, the Hamilton splint, the Nelaton splint, the Bond splint, the Hays splint, and a great number of others. I have neither the time nor inclination to discuss the merits and demerits of these various splints. All of them are more or less faulty; none of them perfect. Most of these splints were devised upon the assumption that, by bearing the hand strongly to the ulna side, the fragments of the radius are brought more exactly into apposition and more easily and effectually retained—a supposition that takes for granted two things: first, that there exists an overlapping of the fragments, either through the whole extent of their broken surfaces or especially towards the

radial side, or, that the upper end of the lower fragment is inclined to fall against the ulna, or that all of these several conditions coexist; and, secondly, that if such displacements do exist, they can be remedied by fixing the hand in strong ulna flexion. The answer to the first supposition is, that Robert Smith and others, who have made a particularly careful examination of all the specimens they could find, in the various pathological collections, tell us that none of these displacements have been found to exist; but that the displacement is backwards and somewhat upwards; so that in bones in which unreduced fractures of this kind have consolidated, the posterior surface is found to be considerably shortened, while the anterior retains its normal length, and, secondly, in order that this position may prove effective, there must be some point upon which to act as a fulcrum. It is of no use that we rotate the hand for the purpose of making extension unless there can be found a resistance or fulcrum upon which the rotary motion may be performed. It is not in the ulna, certainly, for that bone has no point of contact with the carpal bones. When the lower end of the radius is broken, and the ligaments of the joint more or less torn, the ulna, although thrust downwards much farther, perhaps, than it could ever descend in its normal state, still fails to find a support, and spreading wider and wider from the radius as it is thrust farther upon the hand, no limit can be given to its progress, except the capacity of the joint to admit of motion in this direction; and, further, this position is unnatural and exceedingly painful. In the normal hand this position, when forced, cannot be endured beyond a few seconds, and the pain must be infinitely worse, in this position, when the ligaments are torn, the bone broken and the wrist inflamed and tender; and, if persisted in, will have the effect of greatly increasing the inflammation and leaving, in nearly every instance, an unsightly, crooked and permanently stiff wrist, to the great inconvenience of the patient and annoyance of the doctor.

It only remains for us to determine the form of splint which ought to be preferred, and to describe its mode of application. The best temporary and in most cases the best permanent dressing is Wyeth's modification of Pilcher's. It is simple and highly satisfactory, and is applied as follows: Roll two pieces of a bandage, two inches and a half wide, into a compress about as thick as the little finger. After reduction is complete and the hand brought back into the straight position, place one compress along the inner aspect of the ulna, extending from the anterior margin of the carpus upward, the other exactly parallel with this, along the outer border of the radius, over the styloid process. While these are held firmly in position, secure them by strips of adhesive plaster, one inch in width, wound securely around the wrist and arm, from the upper end of the compresses to the lower end. The hand and arm should be carried in a sling, and the dressing worn for two or three weeks. This dressing is neat, and while holding the fragments accurately and firmly in apposition, has the additional advantage of allowing the freest possible mobility of the wrist and fingers, thereby greatly lessening the probability of temporary or permanent stiffness.

The plaster of paris dressing is a most excellent one, and is to be preferred in old people where there is firm impaction which you do not care to break up, or in cases where the fragments are more or less comminuted. It should be applied, from the lower border of the metacarpus to the middle third of the forearm—with the patient's hand in the straight position. A straight dorsal splint may also be employed, but it is not as desirable as the plaster of paris. Under no circumstances use the angular, crooked or pistol-shaped splint, and no form of splint should be allowed to project beyond the metacarpus. The fingers must remain freely movable, to prevent stiffness of the joint. Motion should be encouraged—at first, limited and careful; later active and free. In aged patients, where you have more or less firm impaction of the broken ends, reduction should

not be attempted, as it is better to have a crooked, deformed wrist, than a failure in bony union, and impaction favors the consolidation of the fractured bone.

DISCUSSION ON DR. MORGAN'S PAPER.

Dr. W. H. ELLIOTT, Savannah: I presume, in common with other surgeons, I have had a great deal of trouble with Colles's fracture. I have never read anything about it that ever afforded me any satisfaction in reading, nor have I ever succeeded in treating it by any plan that made me feel sure that I was on the right track. I have in nearly every case I have treated had more or less deformity. I have tried the pistol-shaped splint, and so far as I am able to judge, it has served me no better than others. Some cases that I have treated have escaped deformity, but I look upon the results as being due entirely to accident, and not to any principle of correct treatment which I had in mind.

The Doctor's paper is an excellent one, and it commends itself more to my judgment than anything I have ever heard on this subject, and I personally thank him for the exceedingly clear manner in which he has presented the subject.

Dr. DESAUSSURE FORD, Augusta: I have listened with a great deal of pleasure and profit to Dr. Morgan's paper, and I desire to carry the question a little farther by dwelling upon the medico-legal aspects which sometimes come up in the treatment of this fracture.

I remember a number of years ago, at a meeting of the New York Academy of Medicine, where there were such men as Gerster, Wyeth, Sands and others, that the question of Colles's fracture or Barton's fracture, but Colles's more particularly, came up, and it seemed by the discussion that the Academy was going to reach the consensus of opinion that these cases ought to be always treated successfully. Some of the members stated in the discussion that they had never had any bad results from it; that the

majority of cases had been relieved, and there was no resultant pain, or deformity; there was no loss of the motion of the wrist, and if I mistake not, the distinguished and lamented Dr. Sands was in the chair. He arose from the chair and said: "Gentlemen, I must object to any such dictum being thrown out into the world by this great society of ours, because if it is there will be more suits for malpractice brought, not only against the younger members of the profession, but I am certain against some of the older ones," for he said that even with the most appropriate apparatus, there would be sometimes more or less resulting deformity, pain, and absence of usefulness of the limb. So that, therefore, it seems to me that this ought to be considered in the treatment, and although this is the best apparatus I have seen, it may result, as the Doctor says, badly. This question ought to be considered, and we must not be surprised even if we should sometimes have unfortunate results following any treatment. The principle, I think, is very well grounded, and that is, in the treatment of any fracture, and especially those about joints, the great desideratum is reduction, and if you accomplish this, then the genius and mechanical ability of the man who knows the anatomical relations of the parts are displayed in the proper application of a splint to keep at rest. The surgeon can make the splints himself. A very distinguished surgeon in lecturing to students about the use of splints, used to warn them against taking any of the manufactured splints. He recommended them to make their own splints, because manufactured ones were very much like ready-made clothing—they seemed to fit, but they did not. Reduction seems to be perfectly rational, and it is a remarkable thing that there has not been more written on this point. A number of years ago I was interested in the subject of Colles's fracture, and took pains to look up the literature. I read a book in which it was stated that a number of dissections had been made (and could be seen in the British Museum) in regard to determining what were the muscles which control the fracture,

and to this day it has not been definitely determined. The extensors upon the posterior and lateral side of the radius, the extensors on the ulna, then the extensors of the hand and fingers, and especially those three little extensors of the thumb and first and second fingers, were considered for a long time as pulling up the fracture and keeping it in place. The idea of pistol-shaped splints I have long since held, in teaching this subject, to be unscientific and does not accomplish a good result.

The treatment is simple, and I do not think any man ought to treat a Colles's fracture without anæsthetizing his patient fully. The manœuvre consists of extreme extension and counter-extension, and extension at wrist-joint, and then abrupt flexion of joint, and coapting with the thumb and finger the upper and lower fragments. It is a remarkable fact, if you keep the arm still, that with whatever splint you choose to use, there is not a very great tendency for it to be displaced from the fact that there are no muscles attached to the lower fragment of the bone. It is a curious fact that very often it is impossible to effect reduction when there is a dislocation of the ulna, which slides under posterior annular ligament. When the ulna is jammed under and goes forward with the upper fragment of the bone, and comes under the posterior annular ligament, it cannot be reduced until that ligament is cut.

During the past year I have reduced the dislocation by manipulation in that way by pressure, and putting the fragments in place, then applying a simple strip of rubber adhesive plaster as wide as my three fingers, around the wrist, so that it embraced the extreme lower end of the radius and a portion above the fracture, both the lower and the upper fragments being included. Two straight splints were then applied, if you please, with the old-fashioned pads upon the two prominences. I do not think it is necessary to use more than one or two splints. After a while I apply a plaster of paris bandage. There ought to be passive motion very early, with massage, and it is aston-

ishing what can be accomplished in a short time by it. I mean, passive motion of the parts which have been congested, and which necessarily follows a fracture. Even with impaction there is apt to be more or less wounding of the deeper soft parts. I would put the limb up like an ordinary sprained ankle, in plaster of paris bandage, after a day or two, but it will depend upon the effect of the massage which can be done over the adhesive plaster. At first the massage is exquisitely painful, but after the second and third *seances*, the pain will have invariably disappeared.

I shall certainly adopt the arrangement of these padded splints, as recommended by Dr. Morgan, one in front of the ulna, and the one on the radius. I would use also a bandage of adhesive plaster so as to steady the bones, apposing them as perfectly as possible.

Dr. TAYLOR: You state that early passive motion should be instituted in all these cases. How early?

Dr. FORD: Two weeks or ten days. If the patient is at a hospital, I should not hesitate to begin at once with the passive motion in the way of massage the same as in a case of sprained ankle. We must take into consideration that inflammation of this joint very often involves the sheaths of the tendon and we have thecitis, which is oftentimes lost sight of, and is the cause of the adhesions, and of the ultimate discomfort of the patient, as well as of the loss of motion.

Dr. MORGAN (closing the discussion): Just a word or two in reply to Dr. Ford. The Doctor has made us a long and most interesting talk, touching, however, on but few points contained in my paper. He certainly misunderstood me when he intimated I had said that we might often have failure in bony union in this fracture. What I did say was, that in aged patients, it was better not to attempt to reduce the fracture if there was impaction at all, as it would be better to leave a deformed and stiff wrist, rather than break up the impaction and incur the

danger of failure of bony union. The Doctor says it is his practice to apply a band of adhesive plaster around the lower fragment. This is an old method and, I think, an exceedingly bad one. If the adhesive plaster is applied, without the pads on either side of the wrist, you will invariably have enormous swelling of the hand, with possible necrosis. The pads, which were suggested by Dr. Wyeth as a modification of Pilcher's dressing, are intended to obviate as far as possible any obstruction to the return circulation, and thereby prevent this swelling of the hand, and the consequent almost inevitable stiffening.

THE IMPORTANCE OF CAREFUL CHEMICAL AND MICROSCOPICAL EXAMINATION OF URINE IN APPLICANTS FOR LIFE INSURANCE.

BY W. L. CHAMPION, M.D., ATLANTA.

I was prompted to write a paper with the above title to read before this Association, from the fact that within the past few weeks I have examined patients with kidney lesions who, a few days or weeks previously, had applied for life insurance, and had been recommended as good risks. It is a sad fact to know that there are men in the profession accepted as examiners for life insurance companies, who are either incompetent to make the ordinary tests of urine to ascertain the condition of the kidneys or strain their consciences to make a report favorable to the applicant, when the facts show they ought to do otherwise. It is the duty of every physician when treating the sick to use every means within his power to assist nature to establish a cure, and it is also the duty of every medical examiner in making his investigation and report, to know no friend. It is his duty to remember he is employed and paid by the company to protect its interest, and, if incompetent to make an examination, it is his duty as a man and a physician not to accept the responsible position of medical examiner. In a large percentage of the patients physicians are called to see, it is absolutely necessary to examine the urine before the diseased condition is thoroughly understood, whether it is a kidney disease or not. And to the contrary, a man may be in perfect health as far as physical appearance and examination is concerned, but have a far-advanced kidney disease, that can be detected only by careful chemical or microscopical examination of the urine.

It is a well-known fact that chronic pathological conditions predispose one to attacks of acute disease, and also exacerbations of the chronic trouble finally prove fatal. This holds true in diseases of the kidney, as well as other organs of the body. Looking over the mortality table of several insurance companies, I find in some companies that chronic nephritis is the cause of more deaths than any other disease, while in others it ranks second and third. This should not be so, taking into consideration the habits of the applicants for insurance, their family history and our knowledge of urinary analysis. Every medical examiner (after due deliberation) ought to be able after making a thorough physical examination, having considered the applicant's predisposition to any disease, and last, but not least, having made a thorough chemical, and if necessary, microscopical examination of the urine, to tell the life expectancy of the applicant before him.

I am inclined to make the broad statement that the urine of every applicant for life insurance should be put under the microscope, and I would not be surprised to see in the near future this examination required by the companies. If it were so the death-rate would be lowered and insurance cheapened.

The insidiousness with which kidney diseases develop should prompt us to make a thorough test of every specimen of urine. The microscope is a highly valuable and necessary adjunct to the chemical test, and every examiner should not only be familiar with its use, but use it in every case where there is the slightest doubt as to the condition of the kidneys. Every applicant's urine over forty years of age should by all means be put under the microscope, regardless of the results obtained from the chemical tests; and the question whether an applicant after fifty years of age should be accepted at all or not, I think should be answered in the negative. I make the above statement because we all know that after forty

years of age the "natural inclination is towards fatty and other degenerative changes and urinary disorders."

As the clinical thermometer is an index to the temperature in health and disease, we so might compare the kidneys to this instrument, in that the urine secreted by the kidneys varies in volume, solid constituents and abnormal material in all diseased conditions.

If there is any part of the body of which we can speak with certainty as to whether there is a diseased condition present or not, it is the kidneys, after making a thorough examination of the urine.

Before recommending an applicant for life insurance we should consider his or her family proclivity, whether he or she uses alcohol, is exposed to the action of lead, phosphorus, quicksilver or arsenic.

In examining a specimen of urine be sure it is the applicant's, notice the general appearance, color, odor, quantity passed in twenty-four hours, reaction, and specific gravity. Test for sugar and albumin, regardless of the specific gravity. In some cases it is advisable to determine the quantity of urea and uric acid, especially the former.

The preference for urine secreted during digestion for examination is well known, since, in the beginning of albuminuria or diabetes, albumin or sugar may be detected at this time when it would not otherwise.

If sugar is found in the urine it may be only temporary and due to other causes than diabetes, so be careful in expressing an opinion or making a permanent refusal of the applicant. Uric acid, when diminished in amount, will lead us to suspect Bright's disease, but when increased, would point to a rheumatic diathesis. When we see triple phosphates in the urine, it indicates indigestion or chronic inflammation of the bladder.

In regard to the blood crystalloid it is frequently to be detected before the albumin. When albumin is found in the urine it demonstrates the fact that the kidneys are abnormal, either in circulation or in structure. The microscope shows structural changes that would otherwise

escape detection. Urine from patients with far-advanced Bright's disease sometimes does not show albumin by the heat and nitric acid test, but when put under the microscope will reveal a field full of tube casts. Epithelial, granular, and hyaline tube casts, which are only detected by the microscope, give absolute and complete proof that the kidneys are diseased. The kind of casts and the condition when seen frequently give us a very clear idea as to what structures in the kidney are involved, and how far the disease has advanced. In acute inflammation of the kidney the casts may be only transitory, and the organ may finally be restored to its normal condition; but when it is a chronic trouble this is never the case. As we all know, in a beginning Bright's disease, there is an abnormally large amount of urine passed, therefore any change in quantity or frequency of urination should make us suspicious. Uric acid crystals constantly passing through the kidneys will set up a tubal nephritis. Their presence in the urine should bar the applicant from obtaining insurance as long as they are present. Pus cells are seen in a microscopical examination when otherwise they would pass unnoticed. Their presence is always of serious import, whether they are due to a strictured urethra, inflamed bladder or nephritis. If due to cystitis, the applicant would be a bad risk; if due to urethral stricture, there is a probability of kidney disease following; and if due to a diseased kidney, there is no question about what course to pursue.

I will outline a few cases that will not only show that we should make a careful test of the urine, but demonstrate the importance of microscopical examination.

On the 10th of last month Dr. J. A. Childs, with whom I am associated in practice, and I were called to see a patient, male, age 48. The scrotum was four or five times its natural size, very tense and red. His temperature was 103° Fahr. At the first glance it looked very much like erysipelas. His urethra was examined, and with difficulty a No. 5 French bougie was passed. A diagnosis of rupture

of the urethra with urinary infiltration was made. A specimen of his urine was examined by the heat and nitric acid tests, and no albumin found. It was put under the microscope, and found to be as full of hyaline and granular tube casts as any specimen I ever saw. We did a perineal section on the 13th, and found the scrotum and perineum containing about a pint of very foul pus. Within the next few days nearly all of the scrotum sloughed off, and the patient died from suppression of the urine on the 22d. Now, the point I wish to impress upon you is that this man with a urethral stricture that would only admit a No. 5 French bougie and a far-advanced Bright's disease, was examined for life insurance five weeks before his death, recommended, and his policy forwarded to him. A few days before he was taken sick he was apparently in good health, and probably the physician that examined him did not know that his urethra was strictured, nor did he find albumin in his urine. If he had only put some of the urine under the microscope he would have refused the applicant.

To cite another case. A man of my acquaintance applied for life insurance in three companies at the same time. The examiner for one of the companies, a physician thoroughly acquainted with urinary analysis and the use of the microscope, finding albumin in the urine, told the applicant to return again in a few days and let him make another test. The second and third examination of the urine was made, with the result of finding albumin and tube casts in each specimen. Then the applicant was informed that he could not get insurance in the company. He made the statement that the men who had examined him for the other two companies had recommended him as a good risk, which is true that they did.

Another case where an applicant was examined with the result of finding albumin and tube casts in the urine. He was told that he could not pass the examination. He afterwards applied to another company, and the examining physician told him that the albumin was due to a

slight stricture of the urethra, which, after a little treatment, would be all right. He was treated for a short while, re-examined and recommended for insurance. The company refused him because albumin had been found in his urine by another company at a previous date.

I have a patient on hand who has chronic nephritis. His urine has albumin in it, and tube casts are seen in large numbers. Several specimens of his urine were examined by a physician before I saw him. The examiner told him that the only thing wrong with his urine was the specific gravity was lower than it ought to be. When the patient dropped into my hands, the first indication of any disease that he had was a sudden hemiplegia. Taking into consideration his family history, his habits, and the fact that he is a young man with the history of a sore several years before that was probably syphilitic, his kidney lesion was diagnosed syphilitic. He improved rapidly on iodide potash and mercury. You see this man was apparently in perfect health, as far as physical appearance was concerned, up to the time he was stricken down with paralysis. He could have very easily obtained insurance in his diseased condition, if he had only applied for examination to the physician who had previously said his urine was normal in quantity and quality, but the specific gravity was a little low.

I could cite other cases, but the above are sufficient to demonstrate the point I wish to bring out, that is a great many of us are too prone to overlook the condition of the kidneys, not to make a careful and thorough examination of the urine, not only in examining applicants for insurance, but in every-day practice. The examination of urine is not a pleasant task, but our desire to formulate a correct diagnosis in diseased conditions, as well as do our whole duty as medical examiners, should make it so. In closing let me say it is well for us all to extend our chemical as well as our microscopical investigations in this line of work.

DISCUSSION ON DR. CHAMPION'S PAPER.

Dr. A. W. STIRLING, Atlanta: This subject is one which is extremely important, from the standpoint of both the surgeon and the patient, and although I have not done work in this direction for some years, my personal interest in the matter has but little diminished. Some years ago I conducted a series of experiments which might be of interest to the Association if I related them briefly. Chiefly through the observations of Pavy, George Johnson, and others it was becoming known that all albuminuria was not "Bright's disease," necessarily leading to the death of the patient. In order as far as possible to find out the actual number of people in whom albuminuria was present in health, I examined three hundred and sixty-nine boys, between the ages of twelve and sixteen. These boys belonged to one of the large training-ships on the Thames, near London. In order to be certain that no mistake might be made in regard to the presence of albumin, I examined each boy with four different reagents. The reagents used were: (1) Heat and acetic acid, which I prefer to any of the others. There is little fear of making the solution too acid in these cases. (2) Nitric acid in the cold. (3) Roberts's brine test, sulphate of magnesa and nitric acid. (4) Picric acid; also sometimes (5) potassium mercuric iodide, and (6) ferrocyanide of potassium. The time at which I found albumin most frequent in the urine was three hours after the boys got out of bed. The actual per cent. of albuminurics among the three hundred and sixty-nine boys examined was 20.3. They were divided into two sets. One of these was composed of boys who played in the wind band, and of those I found as many as 60 per cent. with albumin in the urine, whereas, among the other boys the percentage was only 12.8.

Previous to this, M. Stichel, of Paris, had seen blindness produced by the playing of wind instruments, due, he says, to passive cerebral congestion, with a similar con-

dition of the retina and choroid. It has been asserted that the habit of masturbation is frequently a cause of albuminuria. I requested the chief officer to give me the names of some of the boys whom he knew to be guilty of this habit. He sent me thirty-seven, and on comparing them with my list, I found that in the urine of fourteen of the number albumin had been found. It may be that the renal vaso-motor center is weakened by the habit, but that it is not practiced by all adolescent albuminurics, I am satisfied.

Before rising in the morning the urine was absolutely free from albumin, but that secreted after the assumption of the erect posture always showed albumin, as did that passed three or four hours later, and sometimes at a longer period, after which it passed off and entirely disappeared by the end of the day. George Johnson has asserted that cold bathing may produce albuminuria, and others have found it result from ingestion of food. I proved that neither of these was potent in any cases. I stopped breakfast and the bath on several occasions, yet albumin was present just the same. Exercise is also stated to influence albuminuria. This was thoroughly tried in one case and did not have any effect in producing it, unless complete exhaustion was also produced. The theory which I promulgated and which has, I believe, been since accepted as correct, is, that when the individual in question is recumbent, the renal vessels being nearly on a level with the heart, there is no great column of blood to be supported, and this, along with the absolute rest of the sleeping condition, tends to a state of easy circulation through the kidneys. The vessels are able to contract gently on the blood, the tendency to congestion which they experience during the day, is removed, and by morning they are quite unaccustomed to the necessity of any special effort to keep up a normal state of matters. Then comes the time to rise; the patient jumps from bed, a sudden rush of blood takes place in the kidney, the vessels are thrown into a state of wide dilatation, and

they, or perhaps I had rather say, the nerves which govern them, receive a shock which they are unable to resist, and, for the time being, they are more or less paralyzed. How long this condition of paresis may last depends partly on their power of recuperation, and partly also on the stress which is afterwards laid upon them. If these are favorable to recovery, we may find the urine cease to be albuminous in a few hours after rising; or, if not, this may continue in greater or less quantity throughout the day, increased at intervals by any new stress laid upon it, such as by meals. These, however, may have an opposite effect by stimulating or supplying nourishment to the tissues, as has been exemplified in at least one case. Then sometimes it has been noticed that if a patient be in bed during the day and get up towards evening, the albuminuria has not been so marked as if he had risen on first awakening, probably because the greater excitement of the working condition and the strength supplied by food had gently accustomed the renal vessels to a state of greater activity without paralyzing them, so that they were, so to speak, not surprised on the change of position taking place, and were better prepared for the strain consequent upon it.

I also examined ninety-two other cases with ages varying from five to ninety-four, with the result that I found a gradual increase with advancing years in the percentage of people having albuminuria. From twenty to thirty I found only 10 per cent.; from thirty to forty, 25 per cent.; forty to fifty, 36.4 per cent.; fifty to sixty, 66.6 per cent.; sixty to seventy, 75 per cent.; seventy to eighty, 75 per cent.; eighty to ninety, 83 per cent.

These observations were confirmed by Grainger Stewart. Of the total four hundred and sixty-one cases between the ages of five and ninety-four, the average age was thirty-two and one half, and the average number of albuminurics 25.6

Dr. CHAMPION (closing the discussion): I would say, in regard to the remarks made by Dr. Stirling, that the

results he gives in examining urine are very interesting indeed. I am aware of the fact that we occasionally see albumin in urine that is only transitory and may not mean anything serious, but I must confess that I never have seen such a high percentage of healthy individuals with albumin in their urine as Dr. Stirling has reported. As I stated in the paper, when it is found in the urine it "indicates an abnormal condition either in the circulation or the structure of the kidney." What the Doctor has said has been favorable to the position taken in my paper, that is, do not rely exclusively upon the chemical tests, but use the microscope, and if we find graular tube casts there is no doubt but what the kidneys are diseased. When there is pus in the urine due to an inflamed bladder or urethra, we will, of course, find albumin present by the chemical test, but again the microscope will clear up the diagnosis.

APPENDICITIS.

BY SAMUEL LLOYD, M. D., NEW YORK.

The subject of appendicitis has in the past few years awakened an interest in the profession far beyond its importance if we consider only the small organ involved and its uselessness to the animal economy. Its importance is realized, however, when the diseases of the abdomen are studied, and one is impressed with the frequency of its occurrence. It is probable that more than one half of the cases of inflammation of the bowels, and of so-called idiopathic peritonitis, were in reality only inflammation of the appendix, while we now know that almost all the former cases of typhlitis and perityphlitis were traceable to this rudimentary appendage to the intestinal tract. So much has been written on the subject within these few years that little is left to be said in regard to its symptomatology, or operative treatment. Both these subjects have been so well presented by abler pens than mine that I shall not detain you with any questions bearing upon them. It is still a question, however, what cases should be operated upon ; in other words, what cases of appendicitis are medical, and when the case merges from the field of the physician into that of the surgeon.

In order to fully understand this question, I shall ask you for the few minutes placed at my disposal by the gracious courtesy of your able President, whose kindness in asking me to read a paper before you at this meeting, I desire to acknowledge, to look into some of the pathological conditions that affect this organ. These facts must be fully appreciated before deciding the questions before us. In order to have some definite data upon

which to work, I have had collected from literature 558 cases of appendicitis. It may be of interest to an American audience to know that the first operation for this disease was undertaken by an American surgeon, the late Dr. Willard Parker, of New York, in 1843, although the first recorded operation was performed by Hancock in England in 1848. The only cause for the disease in earlier literature was supposed to be the collection of seeds, or other extraneous matter in the appendix, and the treatment was essentially one of depletion and masterly inactivity. Inactivity, however, only so far as the surgical interference was concerned, for the meddlesome methods of the day, in the way of leeches, cathartics, and general disturbance of the patient, were undoubtedly the cause of much of the mortality.

It would probably be impossible to impress a medical audience of the present time that no cases of appendicitis can get well unless submitted to surgical treatment, and I would be the last to say that all cases should be operated upon. We have undoubtedly all seen many cases recover without the knife, and go for years without any indication of a second attack. Many of you probably have seen cases where you felt morally certain that they would have to be operated upon within a few hours, suddenly begin to improve and go on to an uninterrupted recovery. Perhaps you have found yourselves in the same position that I have been in many times and have worried over cases under your treatment, or seen in consultation, uncertain whether it would be wise to advise operation at once or to counsel delay, in the hope that a few hours more time would turn the tide in favor of a convalescence without the aid of the surgeon's knife. I am obliged to confess that this is a problem I have not known how to solve, and it is partly with a desire of reaching a conclusion in this regard that this review of the literature was undertaken. In making this compilation we have begun at the very earliest recorded cases, and this, of course, covers a greater number of medical than surgical

cases. The total number examined up to April 5 was 558, and the result was that 263 recovered and 295 died. Out of this number 226 were operated upon, and 192 recovered, 31 died. On the other hand, and in direct contrast to this, we find that 265 were treated conservatively, 60 recovered, while 205 died. These figures are startling to say the least. This collection of cases, the majority of which were operated upon, or examined post mortem, affords an abundance of material from which to study the pathology of the affection.

The appendix is usually considered as the rudimentary remains of the dilated or prolonged cæcum of herbivorous animals, and is consequently functionless. It is usually on the inner and posterior part of the cæcum about an inch below the ileo-cæcal valve, and at the junction of the longitudinal bands that course over the cæcum and caput coli in common with the rest of the large intestine; and it becomes evident, therefore, that as the contents of the bowels are emptied into the receiving pouch, the cæcum, the tension of these longitudinal bands has a tendency to make the point of their junction, and consequently the opening into the vermiform appendix, the true base of this blind pouch. It is probably for this reason that we occasionally find an attempt at a valve at the opening of the appendix, the valve of Gerlach. The natural result of this condition would be that any fluid contents of the cæcum, or any solid particles of sufficiently small size, readily gravitate into the appendicular portion of the intestine, and this becomes one of the elements of danger. It is now pretty conclusively proven that both the cæcum and the vermiform appendix are intra-peritoneal, that is, they are pushed into the sac of the peritoneum in such a way that they are both provided with a mesentery. This, of course, allows of the free motion that has frequently been noted in these organs, and also accounts for the anomalies in position which are common to the appendix. This also offers a ready explanation for some of the pathological conditions found.

The appendix becomes filled with feces, and then from some cause, change of position of the body, severe straining, jumping, etc., it is bent off, perhaps at an angle so that its lumen is no longer in direct line with its opening into the cæcum. As it is provided with the same glands and structures as the large intestine, its functions are practically the same, and it absorbs the moisture from its contents, while it secretes a mucus exactly calculated to help in cementing together separate particles. This becomes the fecal concretion, which may, or may not, be based upon a seed or some foreign body. If now the appendix recovers its position, if once more the lumen of the organ becomes patulous from cæcal opening to tip, it is possible that the circular muscular fibres by their lumbricoid action may be able to expel the mass. If this does not occur the next supply of feces is treated in the same way until a concretion is built up of sufficient size to prove an obstruction to the circulation in the organ, causing an inflammatory irritation.

The appendix has been likened to a test-tube containing a culture medium, in which different bacilli are being grown. Innocuous, as long as they are surrounded by an impervious tube and are corked up so that they cannot escape and find a lodgment in deteriorated tissues that offer a proper soil for their propagation, they are only waiting for this area of badly nourished tissue. As soon as it appears they seize upon the opportunity, and we have a distinct focus of germ activity. Unfortunately the intestinal tract may be the harborer of almost any of the pathological bacteria, and they may be readily carried into the appendix and there find the nidus for their growth. But in addition to the pyogenic bacteria, there is the bacillus coli communis, whose habitat is the intestine, and which, if the opportunity offers, may become pyogenic and produce suppurative changes, and even gangrenous degeneration of the tissue that it attacks, if it proves sufficiently virulent. It has been stated that the peculiar odor noticed in feces is due to the growth of this bacillus,

and that when we notice a fecal odor in an abscess that is developed outside of the intestine, and without direct communication with it, it is due to the presence of this bacillus.

Particles of feces, or foreign bodies, gravitating into the appendix, may prove so difficult to expel that they cause bruising or irritation of the mucous membrane, and this offers the breeding place for the germ colony already present in the lumen. Or the difficulty may arise from the fact that, while the first third of the appendix is usually supplied with a mesentery, the remaining portion is often free from any confining bands, and may twist on its own diameter, or on its longitudinal axis. Like all the other rudimentary portions of the human body, the appendix is not well provided with circulation, and cannot resist slight traumatisms as well as other more useful parts of the animal economy. Its blood supply comes from a single small artery that courses through the mesentery, or, in case this is absent, beneath the peritoneal coat of the appendix. It arises from the secondary loops of the anastomosis between the superior mesenteric ileo-colic, right colic, and middle colic arteries, and runs along the free end of the mesentery. Supplied thus by a single vessel, which may run the whole length of the organ to its very tip without giving off a single branch, it becomes evident that very little will completely deprive it of its blood supply. Thus a sharp angular bend may be sufficient, or a twist on its axis, or the pressure of an overloaded cæcum may answer to cut off the blood supply of the greater portion of the appendix, and then, of course, but one result can be expected, unless the difficulty is removed before the stasis becomes complete, as a result of the arrest in the arterial circulation.

The mesentery of the appendix arises from the left layer of the mesentery of the ileum, but there is also another fold, a second duplication of the peritoneum, which passes from the upper edge of the appendix to the interior and anterior surface of the ileum at its termination. This has a free concave margin looking toward the left side,

and extending along the ileum for about two inches from its termination. The peritoneal fold is quite distinct from the mesentery of the appendix, and there is a well-marked cul-de-sac between it and the meso-appendix. This is sometimes called the ileo-cæcal recess. It generally contains between its serous layers a small mass of fat and one or two small vessels, giving it a general resemblance to the great omentum. It also often contains some lymphatics, and others are found in the ileo-cæcal recess. The lymphatics of the appendix pass into the appendicular lymphatic ganglion, which lies in this recess. In the female there is often, too, a prolongation from the meso-appendix to the broad ligament, and this also carries blood-vessels and lymphatics, the latter communicating with the lymphatics of the appendix. This arrangement probably explains the frequency of abscess in the right iliac fossa in the puerperal woman. The lymphatics carrying the infection from the improperly cleansed uterus, after labor, up to the appendicular lymphatic ganglion, infecting the whole chain in its course and setting up a peri-appendicitis, and finally extending along the lymphatic chain to the retro-cæcal and post-peritoneal connective tissue, which is in close relation to the structures in this region, and in the cases where the organs are extra-peritoneal, absolutely in contact with them. Probably this is the frequent cause of the true iliac phlegmon of Grisolle. This condition is not confined to the female, however, although, perhaps, more common among them, owing to the frequency of sepis in the female genitals. It may be communicated along the lymphatics in either sex by absorption of the poison from an active but comparatively slight involvement of the appendix.

Formerly this condition of inflammation of the post-cæcal connective tissue was considered the commonest form of the disease. Several writers have considered that the position of the appendix coiled up behind the cæcum would produce this condition, but the cases we have ob-

served do not carry out this opinion. In these instances, instead of a primary inflammation of the connective tissue, the disease has been intra-peritoneal first, and has extended into the tissues behind the peritoneum by secondary inflammation, the attempt of the abscess to evacuate itself in that direction.

Of course, in the cases where the cæcum and appendix are not covered wholly by peritoneum, the inflammation may extend into this tissue primarily, but as I have already said, this is an exceedingly rare anatomical condition, in nearly every instance the cæcum and appendix being completely included between the layers of the peritoneum. If the inflammatory reaction does extend into this region, it is directly evident from an anatomical point of view, that it can burrow almost indefinitely without attempting to point. In the table we find six or seven cases of this kind. In one, there was first of all the symptoms of acute peritonitis, followed by indications of involvement of the thigh at the end of eight days, and at the autopsy the abscess was found to have penetrated from its point of origin at the vermiform appendix, which was gangrenous and perforated into the fascia behind the cæcum, where a large abscess had developed, extending up behind the ascending colon as high as the right kidney, having perforated through the iliacus muscle, and this abscess had also curved down under Poupart's ligament, and extended down the thigh to the knee.

A case seen recently in consultation with Dr. Louis Morris, of New York, illustrates a possible course of extra-peritoneal abscesses. The patient was a young woman of 29, who was suddenly attacked with appendicular colic on her way home from work. When I saw her, the second day, there was a distinct tumor in the right iliac fossa, temperature 104 to 105, pulse 130, tongue coated, face anxious, and all of the general symptoms of involvement of the vermiform appendix. This diagnosis was made, and the advisibility of operation was suggested. The surroundings of the patient were so bad, however, that it

seemed impossible to undertake operation at home, and the family declined immediate removal to a hospital. During the interval the ice-coil was applied to the fossa, and sulphate of magnesia was administered in doses of a teaspoonful in a tumbler of hot water every twenty minutes, until an ounce had been taken. This resulted in several free evacuations of the bowels, and the next day the general condition of the patient was much improved. Two days later the symptoms were again marked, and I had no hesitancy in insisting upon immediate operation, giving a bad prognosis in case it was not done. Operation was refused, and again the magnesia was administered, and the coil reapplied. I did not again see the case, but the history afterward was of great interest, as related by Dr. Morris. She continued to have local peritonitis for some days, gradually decreasing in amount, but with continued suppurative temperature, frequent chills, and indications that pus was present, and the presence of a tumor in the right iliac fossa localized it in this region. After two or more months of this history, during which time she was confined to her bed, and did not improve in the least, she suddenly began to cough, developed a spot of induration at the lower part of the right pleural cavity, and in the right lung, and in the course of a few days expectorated fetid purulent material, with a distinct fecal odor. She was removed to a hospital, where at first the diagnosis of tuberculosis was made, but finally they acceded in the opinion that it was a case of appendicitis, with perforation of the abscess into the lung, and evacuation in that way. The patient has since fully recovered, and was shown to my class in the New York Post-Graduate School on Monday. My own impression is that where the abscess becomes extra-peritoneal, and post-cæcal, it is in almost every instance a case of comparatively slight appendicular inflammation, often without perforation, or intra-peritoneal abscess, but with evidence of marked inflammation of the mucous membrane of the appendix, and decided infection of the lymphatics extending along

the appendicular mesentery, and from there involving the glands in the adipose tissue behind the peritoneum, giving a distinctly infectious adenitis as the focal point for the suppuration in the extra-peritoneal tissues behind the cæcum. In other words, these are distinctly cases of germ infection. A marked instance of this has come under my observation within the past few months, and bears out this theory, that I have had for some time, that these cases are nearly in every instance recurrent, and that the period between the attacks is usually very short. This case was seen in consultation with Dr. E. Denison, of New York, and was a boy of eleven, who gave the history of attacks of supposed colic, covering a period of several years. About Thanksgiving time he had an attack which was so much more severe than usual that Dr. Denison was called, and made the diagnosis of appendicitis. The boy, however, promptly recovered from the acute symptoms, and in the course of a few days, was up. In December, however, he had a second attack, more severe than the first, and the Doctor again saw him, and called me in consultation. On examination a well-marked tumor about the size of a hen's egg could be made out in the right iliac fossa, with the usual symptoms of appendicitis. As the symptoms indicated that this attack had apparently run its course, I advised waiting and operating in the interval. This was acceded to by the physician in charge of the case and the family, and a date was fixed for the operation, following a few days after the disappearance of the signs of the December attack. This was in January. Two days before the date appointed for the operation he had another attack, so that we were obliged, in spite of ourselves, to operate during the acute symptoms, as it was not deemed wise to take the risk of postponement in a case evincing so frequent recurrences of appendicular difficulty. On reaching the caput coli, it was impossible to make out the position of the appendix, owing to its involvement in a mass of inflammatory material, non-purulent in character, and the large number of enlarged glands that surrounded

this whole region. The ileo-cæcal recess was filled with a bunch of several glands, each one of the size of a large almond. The appendix itself was coiled over the top of the cæcum, and its tip was attached to the abdominal wall above the crest of the ilium, and the enlarged glands extended along the whole region in the mesentery of the appendix, and down into the mesenteries of the ileum and the cæcum. It is possible, of course, that this was a case of tubercular infection, but there is no history of tubercular disease in the family, and no other signs of tubercular disease were present.

Another class of cases in which we have only two or three instances in the table are those depending upon external violence. Still this point has been a prominent one in the etiology advanced by writers on the subject. One of these cases resulted from a buffer accident with compression of the right iliac space. Another was compression of the same space between a wagon wheel and a gate-post, and a few other instances of traumatism are detailed. In these cases, of course, the pathological condition may vary very materially by the character of the injury, and the condition of the appendix at the time. It apparently has very little bearing upon the question which we are considering, as the urgency of the symptoms would undoubtedly lead to prompt operation.

Another apparently rare condition in which the affection is found, is where it is secondary to pyæmia, septicæmia typhoid fever, tuberculosis, and other infectious diseases.

Almost any foreign body that can be taken into the intestinal tract that is of sufficiently small size to enter the lumen of the appendix has been found in that organ. It would be useless to enumerate them, but pins, seeds, pearls, fruit stones, shot, gall-stones, pieces of zinc, lumbricoids, pieces of bone, shoe buttons, etc., have frequently been the cause of the inflammatory reaction. Among the foreign bodies, however, the most frequent is the fecal concretion. This varies in size from small grains, or granules, to those filling the full lumen of the gut and

extending an inch or an inch and a half along it. According to the table of cases that I had examined, the pathological conditions could be summed up as follows: First, cases in which the disease follows traumatism. Second, cases following septic inflammations in other parts of the body, such as salpingitis in the female, post-partum septic inflammation of the uterus, typhoid fever, tuberculosis, etc. Third, direct infection of the mucous membrane of the vermiform appendix by its contained bacteria. Fourth, alterations in its position and shape, so as to occlude its lumen, preventing the escape of its natural secretions and contained intestinal contents. Fifth, changes in its position, and pressure upon its mesentery by growths, or impacted feces in the cæcum. Sixth, alterations in its position or shape as to shut off its blood supply. Seventh, foreign bodies, including fecal concretions.

There is one other pathological condition which has been noted in literature about which we can obtain no information from the cases tabulated. Sutherland, Robinson, Yeo Burney, and Haigh have called attention to the fact that Bland Sutton had likened the appendix to the tonsil, and had denominated it the abdominal tonsil because it contained a considerable amount of lymphoid tissue similar to that which is present in the lingual tonsil; arguing from analogy and the recognized fact that the lingual tonsils are not infrequently the seat of rheumatic affections, they suggested that a similar condition could very readily be present in the abdominal tonsil, and propounded the question whether some cases of appendicitis might not be due to this trouble? Personally I have no comment to make other than the simple statement of the fact that the condition has been suggested, except to refer to the histories of two cases which I have seen recently. One, a young woman of 20, had complained of pain for two days in the right iliac fossa. When she came to my office she was in collapse, pupils widely dilated, marked diaphoresis, vomiting, tongue coated, marked tenderness in the right iliac fossa, with a

tumor about the size of a duck's egg, pulse 140, temperature 99⅘, respiration thoracic and sighing. My impression from her condition was that a perforation into the abdominal cavity had occurred, and I called a carriage and sent her home, ordering salicylate of soda and salol as intestinal antiseptics, and stimulants freely administered, in order to get her in condition, if possible, for operation. Her collapse was too profound for immediate surgical interference. During the day she did not rally sufficiently for me to intervene, and I left her at night with instructions that if she improved I should be called in order that operation might be immediately performed. The next morning I was surprised to find her general condition better. The tenderness was less marked, bowels moved spontaneously, vomiting ceased, pulse less frequent, and respiration better. In fact, the improvement was so marked that it was considered advisable to postpone operation somewhat longer. This improvement continued, and was progressive. There was no indication of evacuation of an abscess into the bowels. Her improvement from this time was continuous and she has remained perfectly well since, now some four months.

A second case was one of my assistants at the Post-Graduate Medical School, who had an attack of muscular rheumatism, which had confined him to the house for a few days, when he was suddenly seized with pain and symptoms of appendicitis. I saw him at midnight in connection with Dr. B. Farquhar Curtis, of New York. Here we had a distinct rheumatic history, an acute attack of rheumatism having preceded the symptoms of appendicular involvement. The tumor in the fossa was not large, but exquisitely tender, and the spasm and other symptoms were characteristic of the disease. He was ordered salicylate of soda freely. We decided that it was best to watch the case and treat it expectantly, being prepared, however, for operation at an instant's notice. The next morning a decided improvement of all his symptoms and a rapid and uninterrupted convalescence followed.

These cases are simply suggestive, and would show the possible advisability of initiating a similar treatment in cases where a rheumatic diathesis may be expected.

Starting from these considerations of the etiology of the disease, it becomes important to consider, and to determine, if possible, the evolution of the affection, and, so far as we may be able, to gain information upon the subject to determine whether the changes will be progressive or retrogressive. In the first class, traumatic cases, naturally there is little for us to add. A traumatism in this region does not differ in any essential from a traumatism in any other part of the abdomen, producing contusion or injury of the intestine, and should be subjected to the same rules, and to the same treatment. So too, rheumatic involvement, if it be proven that the appendix may be the seat of a rheumatic affection, would fall under the same rules of treatment as rheumatic diseases in general, and these two questions can be thrown out of our consideration. In the latter we have no data, outside of the two cases that I have reported in this paper; and we recognize the fact that no clinical considerations based upon so small a number of cases can be of any value in determining a fact in a scientific way. In the former set the instances of traumatism are few, and their evolution so characteristic of similar traumatisms elsewhere in the abdomen, that they emphasize the statement that I have made in this regard. When it comes to the other considerations we find some difficulty in deciding upon the course the disease is likely to follow. It is undoubtedly true that many cases of appendicitis get well under medical treatment, and it is probable that many of these cases fall under the class of mechanical obstruction, where either by the escape of a foreign body from the appendix the irritation is removed, and the germ infection not being severe enough to continue the disease, the tendency is to recovery, and frequently, undoubtedly, the obstruction to the blood current from position may be removed, either by change in the position of the bowel, or by the manipu-

lation of the surgeon, allowing the organ to be again supplied with sufficient arterial nourishment before it is too much damaged to fully recover. On the other hand, we have the septic cases, the mechanical irritation from foreign bodies, and the more frequent abscesses, which may go on and produce a number of different pathological conditions. If the obstruction to the circulation is prolonged so that the vessels become occluded, it is perfectly evident that there can be but one result, sphacelation of the whole organ beyond the point of circulatory obstruction. It is not necessary here to have any septic infection in the beginning, but the sphacelation of the organ will naturally produce the same course of symptoms that would result from gangrene elsewhere. It offers a proper field for the development and growth of the different bacteria, and in a very short time would naturally become the seat of pathogenic and pyogenic changes. Naturally this evolution would depend upon the rapidity with which the disease progressed. If the obstruction is complete, the gangrene would be rapid, and perforation may readily occur before the appearance of abscess, or inflammatory changes sufficient to agglutinate the folds of intestine lying about the iliac fossa, resulting in perforation into the general cavity, and producing the symptoms of acute peritonitis. If, on the other hand, the progress of the disease is less rapid, agglutination of the surrounding coils of intestine will wall off the appendix from the general peritoneal cavity, and thus if perforation results, the evacuation is into a closed pouch. The same condition of affairs may occur with any of the different causes for the disease. The longer the irritation, the less rapid its extension into the surrounding coils of intestine, the more certain naturally is the area involved likely to be occluded by inflammatory adhesions of the contiguous layers of peritoneum. The formation of a tumor, however, is not solely, and in every case, due to the presence of abscess. In the great majority of cases it is impossible to recognize fluctuation. This is not surprising, since the common

location of the appendix at the bottom of the iliac fossa allows of the formation of inflammatory products so far posteriorly that they may be protected by coils of intestine between the anterior abdominal wall and the induration, and the thickness of the abdominal wall, together with the pseudo fluctuation of its muscular structures, will often mask any but very marked accumulations of pus in this region. In the earlier stages, and in the slower development of the disease, inflammatory lymph without the formation of pus may be thrown out around the diseased organ, forming an almost impenetrable barrier to the escape of the contents of the appendix into the peritoneum, and producing a well-marked induration. In addition to that, the inflammatory reaction in the coats of the appendix itself often increases the size of the organ several times, and this of itself would be sufficient to give the impression of more or less tumefaction in the iliac fossa. It does not necessarily follow, therefore, that because a tumor is present in the right iliac fossa, the case will not resolve and recover without operation. On the contrary, a simple inflammatory induration and adenitis following a not too active germ infection, may on the disappearance of the original point of infection, be so well provided for by the natural conditions that it will gradually be absorbed, and frequently completely disappear. That is, of course, provided no secondary attacks occur. We all recognize the fact, of course, that the patient is not safe, even when the tumor seems to have developed so slowly as to be comparatively well walled in by the agglutinated folds of peritoneum. The erosion of the pent-up fluids may cause perforation into the peritoneal cavity, and naturally, if this happens, a virulent septic peritonitis must result. Evacuation, however, may take place through the lung, as in the case we have instanced; posteriorly, in the groin above or below Poupart's ligament, into the bladder, rectum, or any of the intestinal coils which lie in contact with the abscess cavity. These cases of spontaneous evacuation may completely recover,

but it is hardly safe in view of the rapid mortality following perforation into the peritoneum, and the risk of that accident, to take the chance of waiting for spontaneous evacuation.

Even if we could be certain that spontaneous evacuation would occur, and that the case would escape all of the more urgent dangers, the results would not be very gratifying to those who believe in the science of medicine. We have tabulated ten cases of spontaneous evacuation, exclusive of those, of course, that ruptured into the peritoneal cavity; of these five recovered, and the other five died.

I do not suppose that the question of the advisability of operation in this disease in the cases where the appendix is gangrenous, where abscess has already formed, where a fecal concretion is probably present in the appendix, would be opposed by any one. Here it is perfectly obvious that unless the causes of the irritation are removed by mechanical means the patient is in imminent danger, and likely to develop a general septic peritonitis at any moment. Unfortunately, this makes up the greatest number of all the cases of appendicitis.

It is also probable that in the present state of surgical knowledge the majority of medical men are in favor of surgical intervention in cases tending toward general peritonitis, even though the symptoms do not point to perforation, or abscess formation, in the hope that drainage of the abdominal cavity, and the removal of an irritating focus of disease may enable the surgeon to forestall what would otherwise be a fatal complication. This would leave us a comparatively small number of cases in which the question of what should be done would be debatable.

Four hundred and forty-five out of 558 cases examined, 79+ per cent., resulted in abscess, perforation, peritonitis, etc.

The following table gives the full data :

Perforation—		
Without given cause,	11	
With Abscess,	10	
" Ulceration,	16	
" Peritonitis,	32	
" Concretion of Foreign Body,	41	
" Gangrene,	7	
" Gangrene and Concretion,	19	
" Inflammation,	13	
" Hardened Feces,	1	
" Concretion and Peritonitis,	24	
" Foreign Body and Peritonitis,	7	—181
Abscess without Perforation—		
Uncomplicated,	136	
Containing Concretion,	19	
With Peritonitis,	2	
Sloughing Appendix,	2	
Foreign Body,	1	—160
Foreign Bodies,	36	
Fecal Concretions,	26	
Inflammation Appendix,	8	
Enteroliths,	2	
Gangrenous Appendix,	9	
Gangrenous Appendix with Concretion,	2	
Inflammation with Concretion,	3	
General Peritonitis—		
With Concretion,	5	
Foreign Body and Gangrenous Appendix,	1	
Foreign Body,	3	
Ulceration,	1	— 96
Complete table,		437

This is indeed a dismal showing for the conservative treatment of appendicitis. It leaves only 121 out of the 558.

It seems to me from this study that we may derive some fairly definite conclusions, and I am convinced that no case of appendicitis should ever be considered as

purely medical. That there is a medical side I will not deny, but in my opinion no one is authorized in treating a case of this disease with the idea of carrying it through as a purely medical lesion. When one is called to a patient, it is his duty, in my opinion, to immediately prepare for operative interference. If himself not an expert in abdominal surgery, he should call a surgeon and both should watch the case, ready to intervene upon the first increase in the symptoms.

There can be no question that the recurrent cases should be operated upon, preferably in the interval, and in my opinion after this study of the subject, I am inclined to advise operation in every case where the symptoms show any tendency to increase. If a tumor is present, and the symptoms suggest the possibility of pus being present, I should surely operate, and the only cases I feel inclined to leave free from the knife are those that may be called mild. That is where the pulse remains of good calibre, not unusually rapid, where there is no nausea and vomiting of a persistent character, and where the muscular spasm and the tumidity of the abdomen are not marked, and prompt evacuation of the bowels is accompanied by an improvement in the symptoms. Even in these cases we have to recognize the fact that a sudden perforation may occur with collapse and death. It must be remembered that the earlier these operations are performed the better the results. In a case showing marked sepsis it is criminal to delay, for every hour means a decrease in the patient's chances of recovery.

Gay considers that operation should be undertaken when the symptoms commence acutely, indicating perforation or gangrene of the process. Operation on the second or third day, or even earlier, is imperatively called for, and in cases of moderate severity on the third or fourth day, if there are no sure and marked signs of improvement; while it must also be done in slight cases, if the improvement is not progressive. Frequent exacerbations or re-

lapses especially call for operation, and when the diagnosis is doubtful and the symptoms do not subside within a reasonable time, an exploratory incision should be made. On the other hand, operation is contraindicated in slight cases and those of moderate severity that show signs of improvement by the third day. It is never advisable to operate on patients in profound collapse. Meyer says that in cases of diffuse perforative appendicitis, the operation must always be done at once. The best chances of recovery are within the first twelve hours, but exceptionally a patient may get well without an operation. In cases of acute appendicitis careful observation is essential. If the pulse goes up above 116 to 120, and has a tendency to stay there, the indication for an operation is given, and in case of doubt, the operation is better than waiting. In the subacute (mild) attacks, and after the first severe attacks, from which the patient recovers without immediate operation, the appendix should be removed.

It seems to me that Gay is too conservative and Meyer too radical. The former would wait too long, the second or third day after the indications of a perforation would in many cases mean an autopsy instead of an operation, while the latter would remove every appendix that has ever given signs of disease. I am convinced that I have seen severe cases of appendicitis get well without operation, and remain well for several years without any indication of a recurrence. But I am also convinced by my study of the cases I have tabulated that four fifths of the cases outside of those of a transient and mild character have lesions that are curable only by a miracle or the knife. One cannot but be impressed with the comparatively small number of cases of any degree of severity that can be improved by medicine, and I feel inclined to believe with a medical friend, who said that he considered that the medical side of appendicitis consisted and ended in the making of the diagnosis. Very mild cases without history of previous attacks should be treated by free evacuation of the bowels, in my opinion, by

salines, and by the exhibition of such antiseptics as are applicable to the intestinal tract; but if improvement is not noted at once, medical art should yield to surgical mechanism. In every case with a history of recurrence the operation should be performed in the interval, if possible, and in other cases whenever abscess is suspected, or vomiting of a bilious or fecal character occurs and is persistent, and when there are signs of a spreading peritonitis, or increasing sepsis, with increasing shock and weak and rapid pulse, or an increasing tumor and tenderness in the right iliac fossa, or where improvement is delayed beyond the second or third day in the mild cases, operation should be performed. A sudden fall in the temperature and increase in the rapidity of the pulse, or even a decrease in some marked cases, if the depression is marked, indicates that there is no time to lose. These symptoms point to an approaching perforation and time means everything in determining the question of life or death.

THE MEDICAL SIDE OF TYPHLITIS OR APPENDICITIS.

BY EVERARD HAMILTON RICHARDSON, M.D., ATLANTA.

"Take Nature's path, and mad Opinion's leave,
Make fair deductions; see to what they 'mount."

General Observations.—During the closing hours of the nineteenth century, we are witnessing, possibly, the crowning achievement of this century, namely, the discovery of the Roentgen rays and their utilization in bringing within the field of our natural vision internal viscera heretofore invisible until exposed by the surgeon's knife. The contemplation of the possibilities that the discovery is opening up for the physician and surgeon, dazzles our finite imagination and almost confounds our understanding. The marvelous conquests of science, and the amazing revelations of surgery and medicine during the last quarter of the nineteenth century, warrant the hope that the twentieth-century physician will make no mistakes in diagnosis, and the coming surgeon will not operate too late, too early, nor unnecessarily, for the one is as much to be condemned as the other. No one familiar with recent medical literature, especially that emanating from our American *confreres* will question the declaration that the surgical side of typhlitis or appendicitis has been thoroughly elaborated and most ably championed by the most eminent *savants* of the medical profession. How to operate for *appendicitis*, descriptions of improvement in its technique, since the stimulus given the operation by Pepper, McBurney, Fitz, and their associates, has been a burning topic; but the medical side of the subject, its management and cure without the use of the surgeon's knife, has had few advocates, and very meagre support.

When a man from our own ranks, the beloved Robert Battey, plunges his scalpel in unploughed ground, and lo! his name is written in undying letters of gold high upon Glory's shaft, shining forever through Time's cycles; when the goddess Fame, wooes the ambitious surgeon to climb above the mists and clouds of this world, and do deeds of heroism by carving his name upon Glory's heights, we acknowledge that the temptations besetting the ambitious surgeon are infinitely greater than those confronting the plain physician, whose most brilliant work in diagnosis and treatment is often done silently and alone in the deep vigils of the night, and is unheralded to the world. No intelligent and truthful medical man will question the statement that since the enunciation of Battey's operation in 1872, thousands of human ovaries have been unnecessarily removed, and no one lamented more profoundly the useless and barbarous mutilation of ignorant and credulous victims than the renowned originator and promulgator of the operation, Dr. Robert Battey.

Definition of the Disease.—Upon the threshold of our investigations, I wish to declare that I consider the name *appendicitis* (a derivative from the Latin *appendere*, *to hang to* or *from*, and the Greek suffix ιτης, denoting *inflammation*) a monstrosity and travesty upon philology, because it is incongruous and ambiguous. That erudite scholar and distinguished physician, Dr. P. H. Pye-Smith, B. A., F. R. S., of London, denominates it "a barbarous compound of Latin and Greek, unnecessary and misleading."

Typhlitis (from the Greek Τυφλος, *blind*, and the Greek suffix ιτης, *inflammation*) is harmonious and comprehensive, and signifies not only inflammation of the cæcum, but includes inflammation of its appendix. "The term *typhlitis* is applied to inflammation of the vermiform appendix as well as to cæcitis." (*Austin Flint.*)

"The term *typhlitis* or *perityphlitis* is conveniently applied to a form of localized peritonitis occurring in the cæcal region." (*Frederick Treves.*)

"The name typhlitis is preferable to perityphlitis." (*Charles Hilton Fagge.*)

It may be said that the inflammation often affects only the appendix. It is equally true that it frequently is confined to the cæcum, and the inflammation may be as serious in its consequences in one location as the other.

"I have met with several cases of perityphlitic abscess in which the appendix has appeared to be *perfectly sound.*" (*Treves.*)

In each location the inflammatory process may terminate in resolution, ulceration, or suppuration, I believe we may have paratyphlitis (inflammation of the connective tissue surrounding the cæcum) primarily, but both paratyphlitis and perityphlitis are usually secondary to inflammation of the cæcum or its appendix, or to other entirely different diseased conditions, such as caries of the vertebræ, ilium or ribs; or to typhoid fever, tubercular peritonitis, or inflammation of the right ovary. But I think it rarely practicable to differentiate between these pathological processes clinically in their inception. It is only by carefully watching their progress and termination that we are able to locate the probable origin of the disease.

The Cæcum and its Appendix Vermiformis.—In herbivorous animals the cæcum is very large, but in the carnivora and man it is in a rudimentary state. In the human subject it is located in the right iliac fossa, is entirely invested with peritoneum, and its average breadth is three inches, and average length is two and a quarter inches. The average length of its appendix vermiformis is four inches, though it varies in length from one inch to six inches. The appendix communicates with the cæcum, and its terminal end is closed. Its diameter is about the size of an ordinary goose-quill and it is filled with tough

mucus, but frequently feces, occasionally worms and foreign bodies are found in it also, where under favorable conditions they remain harmless. Healed cicatricial ulcers resulting from typhoid fever, dysentery, tuberculosis, and syphilis are often found in the appendix during *post mortem* examinations.

From the standpoint of evolution, Mr. Treves says: "The appendix would appear to be becoming obliterated. In the human subject it is often absent." In this connection it is extremely significant to remember his further statement: "It is worthy of note that *disease* of the appendix tends to cause *entire obliteration* of the part. It is quite common to find in *post-mortem* subjects that the vermiform process is wanting. Traces of it are indicated, and such relics as exist are buried in a mass of inflammatory adhesions. The appendix has in such instances been obliterated by a morbid process, and has been rendered incapable of producing fresh trouble."

"I have known personally numbers of cases in which, after one or two attacks of appendicitis, the individuals have remained in perfect health." (No operation having been performed.) (*Osler.*)

This doubtless is the reason why the number of cases having but one attack of typhlitis or appendicitis, is greater than those where the attacks are repeated.

Owing to the conformation of the cæcum, it is a *receptaculum* for the stagnant excrementitious material of the alimentary canal; and it is, with its appendix, the most vulnerable portion of the digestive canal to morbific agencies, and, pathologically, is the most interesting. Its *appendix vermiformis* is without known function, and its only office is to create pathology. It is usually found behind the lower portion of the ileum, pointing in the direction of the spleen, but its location is extremely uncertain. It may be found attached to the liver, ureters, uterus, bladder, rectum, or it has been found in the inguinal canal.

History of Typhlitis or Appendicitis.—The impression largely obtains even in the medical profession, that this is a modern disease; but it is not new, and the writer does not believe that it occurs more frequently now than in former times. The great advance in operative surgery during the past decade, made possible by the doctrine of *asepsis* taught by *Sir Joseph Lister*, and not the increased prevalence of the disease, nor improvement in diagnosis, has given conspicuous prominence to the malady in recent years. In 1827 Melier, Dance, and Hussar gave to the world observations on inflammations confined to the connective tissue in the cæcal region. Dupuytren at the same time differentiated the affection from other diseases. Louger Villermay, in 1827, also published a treatise on inflammation of the vermiform process. At this period, Puchelt denominated the disease perityphlitis. The library of the Surgeon-General's office at Washington, D. C., contains a *brochure* on *Typhlitis* or *Perityphlitis*, the title of which is "A Peculiar Inflammatory Tumor in the Right Iliac Region," by Dr. Gottfried Goldbeck, of Worms, published in 1830. Deputy Surgeon-General U. S. Army, Dr. D. L. Huntington, has kindly favored me with a *resume* of Goldbeck's treatment of the disease. An examination of Goldbeck's treatment affords ample proof that he, at that early date, enjoyed a fair conception of the nature and treatment of the disease. More than sixty-five years ago he advised, that "warm cataplasms and fomentations, emollient and evacuating clysters, strict regimen, and rest in bed will suffice" in the treatment of the milder forms of the disease.

"In the severer forms, with more pain, constipation, vomiting, fever, etc., strong antiphlogistic measures, general and local, by bloodletting and leeches, must be resorted to. Notwithstanding the greatest care, suppuration may take place, pus passing by the rectum, then a strict regimen and light diet will suffice to complete the cure. But if the swelling remains or increases, if fluctuation should appear, it should be *opened early* and not left

to nature. A proper position of the patient for the discharge of the pus will be very necessary." Thus it will be observed that Goldbeck, in 1830, not only advised incision for the discharge of pus in typhlitis or appendicitis, but that he understood the importance of drainage in the management of these cases after suppuration has occurred. Petrequin and Stokes, in 1837, made contributions to medical literature, advising the use of opium in perforation of the vermiform appendix. In the library of the Surgeon-General's office at Washington, D. C., may be found Dr. James Jackson's "Letters to a Young Physician," written in August, 1855, under the caption, "A Painful Tumor Near the Cæcum." He gives a clear and most accurate description of the disease, locating the pain and tumor as seated on a horizontal line connecting the two anterior superior spinous processes of the ilium at the point where this line intersects the right margin of the rectus muscle on the right side. No modern author has given us a clearer or more accurate description of the disease than Jackson, and his treatment is wise and judicious. The great nestor of American medicine, Austin Flint, Sr., in his "Practice of Medicine," published in 1866, gave to the profession his first article on typhlitis. But in the fifth edition of his work, under the title, "Inflammation and Perforation of the Vermiform Appendix of the Cæcum," written by Austin Flint, Sr., himself, and published in 1881,* we find, from a purely medical standpoint, the ablest article, ancient or modern, yet published on the subject. The exposition of the disease and its treatment by the master mind of Flint, is full and exhaustive, with its foundation on truth, and the correct conception of the disease.

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*NOTE.—"We have no reason to doubt that the article on appendicitis, in the fifth edition of Flint's work on practice, was written by Dr. Flint himself.

"Dr. Austin Flint died March 13, 1886."

Philadelphia: September 5, 1895. Lea Brothers & Co., Publishers of Flint's "Practice."

Dr. Willard Parker, of New York City, in 1848, gave a great impetus to the surgical treatment of the disease by advising and practicing early incision and free drainage when evidence of suppuration was manifest. In 1880, Dr. W. C. Wey published a collection of sixty cases, giving results. But the real *renaissance* of the disease is due largely to American surgeons. Pepper, Fitz, McBurney, Senn, Bull, and a galaxy of surgical worthies, have made brilliant contributions to modern surgical lore on the subject of appendicitis. In 1887, Mr. Frederick Treves, F. R. C. S., of the London Hospital, read a treatise on relapsing perityphlitis, before the Royal Medical and Chirurgical Society. The same distinguished author, in 1895, has published one of the ablest surgical articles that has appeared on the subject. At the present time the mass of medical literature on the disease is stupendous, and the names of the authors who have written on the subject is legion. However, the trend of all that has recently appeared upon this subject, is to make every case of typhlitis or appendicitis a surgical disease, *ab origine*, demanding early removal of the appendix vermiformis.

Dr. Wyeth, one of America's ablest general surgeons, may be considered a true exponent of the *ultra* surgical sentiment dominating now in America, when he affirms that "The *materia medica* possesses no agent that can prevent infection of the peritoneum from a diseased appendix, or that can cure the disease when once established. In my entire experience with this lesion, I have yet to see a death which could not properly be ascribed to delay in timely and skillful surgical interference." That this *dictum* is a pernicious fallacy, I hope to be able to make manifest before concluding this article.

Etiology and Some Clinical Phenomena of the Disease.—The most frequent occurrence of typhlitis or appendicitis is in robust young males. It has been observed that for physical reasons the cæcum and its appendix is the most vulnerable portion of the *primæ viæ*, and is often

the site for the accumulation of feces and the lodgment of foreign and irritating subtsances, rendering it a favorite *habitat* for infecting micro-organisms. Though found from mouth to anus, and innocuous when the canal is in a normal state, it is believed that this site is the paradise and banquet-hall for the *bacterium coli commune*, which is the hypothetical exciting cause of typhlitis or appendicitis.

Here these workers of iniquity doubtless revel, dressing in purple and fine linen, and faring sumptuously every day. The first step in inflammation of the cæcum or appendix, it appears, is the genesis of an infective area; the initiating cause of this condition may be an injury produced by a stricture or twisting of the bowel, traumatism, or ulcer from contact with a foreign substance, or a blow or fall. I exhibit here a specimen of a perforated and gangrenous appendix, apparently produced by a fall from a house. With an alimentary canal rendered abnormal from cold, constipation, indigestion, or diarrhœa, the conditions become favorable for an aggressive onslaught from the *bacterium coli commune*, panoplied "with bow and pointed javelin," and their toxins, now, we are told, become *virulent*, and inaugurate all the phenomena of an acute inflammation, and we have local pain, heat, swelling and the exudation of serum; constitutionally we have anorexia, fever, vomiting, and accelerated pulse. The disease terminates in either resolution, ulceration, or suppuration. By ulcerative process perforation may ensue and general peritonitis result. Treves says: "The invasion of the peritoneum by the micro-organisms gives rise to sudden, violent, or acute symptoms, to an outbreak so abrupt and intense as to produce the impression that the appendix has become perforated." Lodgment of foreign substances in the alimentary canal is most apt to occur in the cæcum, on account of its being a reservoir for passing excrementitious material; and enteroliths are most frequently found here, but the great majority of them are evacuated spontaneously through

the rectum. In addition to mucus, liquid feces is generally found in the appendix; when solidified enteroliths are formed, they are usually innocuous, and do not figure as a conspicuous etiological factor in the production of typhlitis or appendicitis in a normal alimentary canal. It is alleged that calcareous concretions may originate in the appendix, generated there from the salts of the mucus normally secreted there, constituting a lithiasis similar to renal and biliary lithiases, or rhinoliths occurring in the nose. I do not question but that foreign substances as a causative agent in the production of inflammation of the appendix, has been greatly exaggerated.

"Enteroliths seldom occasion intestinal obstruction. Leichtenstern could find only twenty examples among one thousand one hundred and fifty-two instances of obstruction of the bowels." (*Treves.*)

Most of us have often unwittingly swallowed cherry-and plum-stones, shot, grape, and every variety of seed, but they passed the whole length of the gut *per vias naturales* without entering the appendix. Door-keys, pieces of horseshoes, flutes, pencil-cases, breastpins, and dagger-blades have been swallowed and passed the entire alimentary tract, and it has escaped injury. The writer has personal knowledge of a toothpick and a small cambric needle passing safely from mouth to anus. On this subject Dr. Osler declares: "Foreign bodies are by no means so frequently met with—only twelve per cent. in one hundred and fifty-two cases of appendicitis collected by Fitz, and only two instances came under his observation in ten years pathological work in Montreal. Fecal concretions and foreign bodies are met with in the appendix without apparently causing the slightest abrasion of its *mucosa*."

Dr. Robert Dawbarn, in the *Medical Record*, August, 1895, in commenting on this phase of the subject, remarks "the date-stone after removal from the appendix was handed about for inspection, and no one questioned its nature. But being washed later on, it crumbled into

feces. I have seen two similar cases, one in which a peanut proved to be scybalous, and the other, in which an orange-seed, which was shown me months after the operation, and after dozens had accepted its nature, under the finger nail revealed itself as hardened feces." So it is, without question or attempting to reason for ourselves, we are satisfied *jurare in verba magistri.*

Munde and other observers have recorded instances of typhlitis or appendicitis occurring during pregnancy and following labor. Beverly Robinson thinks rheumatism or gout may be a cause of the disease. Doubtless, in every case of typhlitis or appendicitis, we have a localized peritonitis, which, if not interfered with by a mischievous, perturbative treatment, subserves the salutary purpose of protecting the general abdominal cavity from ulceration and perforation by agglutination of its walls. Thus, if the inflammation does not terminate in health by absorption of the effused products of the inflammatory process, but unhappily "result in suppuration, the pus will, with few exceptions, be encysted." (*Treves.*)

The disease usually runs its course inside of eight days, though resolution may be longer delayed. After the inflammation has terminated in abscess and become walled off from the general peritoneal cavity by adhesive inflammation, it may remain for weeks and result in no injury to the patient. The writer has had to come under his personal observation an instance where the pus sac remained intact for six weeks, the patient sitting up and riding on the cars two hundred miles and walking from the depot to my office in Atlanta. A simple incision was followed by at least one quart of offensive pus having a marked fecal odor, result of absorption from contact with the cæcum. Under drainage the patient's recovery was rapid. The history of the case pointed clearly to a neglected, but not fatal, case of appendicitis. However, it illustrates that a plain case of *laissez faire* treatment is often better for the patient than too much *secundum artem* interference. But it is difficult for us to understand that

the voice of nature is the voice of God, admonishing us to garner gems of wisdom from her teaching. When the abscess has not been properly treated and opened early by the surgeon, it may open externally through the skin or into the bowel, and such cases usually recover. It may also open into the bladder or some internal *viscus*. Bull's collection of sixty-seven cases shows that "in twenty-eight instances the abcesses burst through the anterior abdominal parietes, in fifteen it entered the cæcum, in eight into the general peritoneal cavity, in two instances each it made its way into the thorax, bladder and rectum."

It is proper to speak of another termination of the disease. This is where perforation occurs and the *bacilli* and contents of the bowel escape into the general peritoneal cavity, producing alarming general peritonitis. Formerly most of these cases proved fatal. It should not be lost sight of that tuberculosis of the appendix is not infrequent, and that ulceration of the appendix often occurs in typhoid fever and dysentery. Osler records a case of perforation of the appendix resulting from a typhoid ulcer. Osler also says, in 1895: "It is interesting to note the comparative rarity of fatal peritonitis from appendix disease in general medical work. In four hundred and fifty consecutive autopsies on patients dead in my wards at Johns Hopkins Hospital, there was not a single instance of general peritonitis from appendix disease." Appendicular *hypochondriasis* is now of frequent observation since the inception of the appendix craze. Strange to relate, Osler tells us that this type of the malady oftener afflicts members of the medical profession than other subjects.

Diagnosis.—Pain in the belly, beginning at variable locations in abdomen, but finally becoming localized in right iliac fossa is, in the majority of instances, the first symptom manifesting the disease. Instances occur where the pain has begun over umbilicus, on the left

side of linea alba, or in some other remote spot from the seat of the disease. Tenderness in the right iliac fossa I have never seen absent in any case, the symptom increasing with the progress of the disease. Percussion dullness may also be present in this location. In the severer types of the disease the pain may radiate to perineum, testes or right thigh, and create disturbance in micturition. Vomiting and fever are also early and prominent symptoms of the disease. The pulse is accelerated and varies from one hundred to one hundred and thirty beats per minute. The temperature is elevated in the axilla to 100° or 103° Fahrenheit. Constipation is usually present, though diarrhœa may exist. Firm pressure in the right iliac fossa by the third day may reveal a doughy tumor, though it is not always possible to define it, even by rectal touch. The disease is not usually ushered in by a chill. A severe chill in the beginning would, I think, indicate one of those rare instances of rupture of the appendix, initiating the disease. It is important to differentiate the disease from uterine colic, salpingitis, ovaritis and abscess from the puerperal, or other septic causes; caries of spine, hip-joint, pelvic bones, and ribs or vertebræ; renal, hepatic or intestinal colic, intussusception; actinomycosis, carcinoma or sarcoma of cæcum; stricture or volvulus of bowel, typhoid fever, tuberculosis of bowel, rupture of gall-bladder, floating kidney, or gastro-duodenitis. Unless great care is taken the disease may be confounded with almost any disease of the alimentary canal or of the abdominal viscera. Sudden and marked exaggeration of the symptoms accompanying the disease, particularly the accentuation of the abdominal pain, greatly accelerated pulse, with or without a chill, warrant the assumption that perforation has occurred. A chill may occur during the course of the disease, when a macroscopic examination will fail to show perforation. Perforation may occur unaccompanied by a chill. The temperature may be normal or subnormal after perforation. I have seen perfora-

tion and general peritonitis with a temperature of 104° Fahrenheit. Usually general peritonitis begins early after perforation, though such cases may die from shock inside of forty-eight hours before the supervention of general peritonitis. The formation of an abscess is denoted by the presence of fluctuation. The termination of the disease in suppuration is not always indicated by a chill, rapid rise of pulse, and increased temperature.

Prognosis.—I consider the disease under consideration a grave and serious one, and no malady in the catalogue of diseases demands prompter or more intelligent treatment from the beginning of the attack than typhlitis or appendicitis, requiring unremitting and the most skillful surveillance from the medical attendant. Indeed, I think the sword of Damocles hangs over every patient attacked with the disease. If the disease is not judiciously and promptly treated from the beginning of the attack it will become a surgical case, terminating in abscess and may be followed by general peritonitis and the most serious con sequences. But when properly treated from the beginning of the attack, my conviction, founded upon my own observation and experience, as well as upon the testimony of such medical and surgical authorities as Austin Flint, Sr., Frederick Treves, Hilton Fagge, Pye-Smith, Osler, Mr. Jacobson, and others, is convincing proof to me that between seventy and eighty per cent. of the cases recover under medical, hygienic, and dietetic treatment alone without the aid of surgery.

Treatment.—My attention was first directed to the subject of typhlitis or appendicitis during the year 1875 by the following case: Miss A., age eight years, the daughter of a well-to-do planter, living two miles from my home, Cedartown, Ga., was taken with pain, fever, and vomiting. The pain and tenderness was confined to the lower portion of right side of abdomen, accompanied with circumscribed swelling in this site. The case was treated with rest in the recumbent posture, opium, and allowed

only a fluid diet, coupled with enemas to unload bowels and relieve constipation, and hot flaxseed-meal poultices to abdomen. The form of opium used was known in that section at the time as camphorated powder—composed of opium, camphor, chlorate of potash, and liquorice root. I saw the case first May 21, 1875, and it was discharged May 29, recovering in nine days. The case was a most interesting one, and I saw it twice daily. Some weeks after recovery, *en route* to Porter Springs, Ga., the patient had a relapse in Marietta, Ga., and was treated by Dr. Settes, of that place, I think with opium and calomel. After a month's sojourn at Porter Springs she returned to the home of her parents near Cedartown, and I believe never had another attack of the disease—enjoying immunity from further attacks. She is now the wife of an intelligent physician of that section, has several children, and has never been operated upon for appendicitis. In the treatment of this case, more than twenty years ago, I lay no claim to originality. At the time, Flint's "Practice" was my *vade mecum*, and I was then thoroughly familiar with his teachings. I only adopted Flint's treatment. Jackson's treatment for the same disease in 1855 was "cathartics, leeches, a blister to the part, and opium to relieve pains."

Ten years later I treated a case of exceeding interest of the recurring or relapsing form of typhlitis or appendicitis. On October 19, 1884, I saw young Mr. S. B., aged about sixteen years; he had vomiting, pain, and tumor in right iliac fossa, with fever and constipation. His suffering was very acute, nausea and vomiting intense. I begun the treatment, notwithstanding the loaded condition of his bowels, by the hypodermic administration of morphia and atropia, which had the happy effect of relieving vomiting, and controlling pain, and quieting peristalsis of the bowels. I did not leave the bedside of this young man for twelve hours; hot poultices were used constantly, and the bowels were finally emptied of a large amount of feces by copious enemas used twice daily. This case re-

covered without abscess in ten days. During the ensuing May, 1885, he had a similar attack, and in July of the same year, he had the third attack. The same treatment was used by myself in each attack, with the same happy result—recovery without the use of the knife. The young man has since grown to vigorous manhood, and has enjoyed perfect immunity from any attacks of the disease subsequent to the above dates, and is now living in the city of Atlanta, a perfect specimen of health and physical manhood. The two cases are given as types of other cases treated by me successfully since 1875 by the same agencies, and without the use of the knife. Active purgation and the withholding of opium and rest would have placed these cases, in all probability, in the hands of the surgeon. The therapeutical measures employed by me in the management of typhlitis or appendicitis for the past twenty years, when begun early, from the inception of the disease, have in my hands been uniformly successful. In the treatment of the disease, my first injunction is absolute and unqualified rest by confinement of the patient to bed in the recumbent posture. This injunction secures *rest* for the body. The next demand is total abstinence from all food and drinks during the first twenty-four hours of the attack. I allow crushed ice to quench thirst. The first and last curative agent administered internally is *opium* in some form. The practitioner must use his own discretion and judgment as to the preparation of opium employed and method of administration. When practicable, I prefer to give the drug hypodermically, and it should always be given in a fluid form. There is no objection to combining with the morphia, atropia. Opium must be administered in sufficient doses and at proper intervals to subdue pain, quiet nervous irritability, allay hyperperistalsis of the bowels, tranquilize the nervous system, and promote sleep. Locally, leeches should be applied over the seat of the inflammation. After sufficient local depletion has been

The scheme of operating early in the disease and removing the appendix, *nolens volens*, is not based, I think, upon sound surgical doctrine. When a woman, after confinement or abortion, has a septic peritonitis with its *focus* in the uterus, extirpation of the uterus would be the dream and ideal procedure of the modern operating surgeon, but I think such methods neither safe nor advisable for the subject.

To operate during the acme of an active inflammation is not good surgical doctrine, and I am not inclined to believe will stand the test of time.

Under the first proposition, the pus should, I think, be removed and drained without delay after suppuration has occurred. When suspected, if confirmation is needed of its presence, the hypodermic or aspirating needle should be used. As to the time when the incision should be made, Treves says: "The use of the knife will very rarely be called for before the fifth day. Surgical interference before the fifth day should not be undertaken except in the presence of very emphatic symptoms." If the pus has become encysted after simple incision and drainage, recovery is the rule. Under these circumstances the appendix should not be fished for. It might be more surgical to remove it, but a dead patient could not appreciate the æsthetic advantage.

Under the second proposition, where perforation has occurred and general peritonitis has supervened, the outlook is most discouraging; nevertheless, under these conditions, it is extremely gratifying to note that within the past year McBurney has reported through the *Medical Record* twenty-four operations done by this eminent surgeon for general septic peritonitis, resulting from perforative appendicitis, with fourteen recoveries. After incision, thorough washing with salt solution, drainage with glass tube, gauze packing and leaving abdomen open was his treatment in these cases.

In the third contingency for the relapsing form of the disease, after a sufficient number of attacks have occurred

to reduce the patient to a condition of invalidism, exploratory incision should be made with the view of removing the appendix, but this should be done *during* the *quiescent period* of the disease.

Before closing this article, to prevent shock to surgical ears, I wish to quote from a few authorities sustaining my view—that only a minority of the cases of typhlitis or appendicitis, when properly treated, are surgical cases.

Dr. René Appert, one of the most brilliant young surgeons of Paris, France, under date of September, 1895, writes: "Where there is no vital indication we wait till the inflammatory period has terminated before operating for appendicitis."

On the subject of relapsing appendicitis, Mr. N. Davies-Colley, surgeon to Guy's Hospital, London, England, says: "I consider that an operation is justified when several attacks recur with short intervals, and especially in children or young adults."

Dr. P. H. Pye-Smith, B. A., F. R. S., physician to Guy's Hospital, London, July, 1895, states: "I believe that almost all cases of typhlitis or appendicitis, if early and efficiently treated by absolute rest in bed, strict liquid diet and opium in sufficient doses to stop peristalsis, will do well. This was my late colleague, Dr. Fagge's, experience in Guy's Hospital and private practice. Even with patients who are brought into the hospital after several days' illness, the same plan of securing prolonged rest to the inflamed part is, in the majority of cases, successful."

Upon the relapsing variety of appendicitis, he says: "After complete recovery from the third or fourth attack, the patient being in good health, I advise the removal of the appendix. Such operations are, in my experience, far less dangerous than when undertaken during an attack of typhlitis, and are usually successful."

Dr. W. Hale White, physician of Guy's Hospital, London, writes me, September, 1895: "I think about eighty per cent. of the cases of appendicitis recover without an operation. I strongly advise opium in the early stage of

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[illegible]

the disease. An operation is demanded by the formation of an abscess, or the supervention of general peritonitis, and should be resorted to as soon as either is certainly diagnosed."[1]

Dr. Charles Hilton Fagge, in the last edition in 1895 of his admirable work on practice, says: "The course of typhlitis depends, I believe, very largely upon the treatment which is adopted. I have indeed a strong conviction that no case in which the disease can be diagnosed as being seated in the cæcum, ever terminates fatally, if *judiciously managed.* The essential points are that the patient should be kept perfectly at rest; that his diet should be strictly limited to fluids, that he should not be allowed to take a single dose of aperient medicine, and that *opium* should be given *freely.* I only know of one fatal case as having occurred in the last five years at Guy's Hospital, if I may exclude cases in which death took place a few hours after admission, and in which purgatives had been used. Relapses are often due to disregard of directions."

Mr. W. Arbuthnot Lane, M. S., assistant surgeon to Guy's Hospital, and one of the most capable operators in England, July 1895, writes me: "I give a lot of opium in appendicitis, and watch my patient closely. I have given up removing the appendix during an acute attack, because it entails a risk which I think can be avoided by the use of other means."

Dr. Hare states "that he had met with a good many cases of typhlitis, but he ventured to say that none had gone to a point requiring surgical interference."

Frederick Treves, F. R. C. S., and surgeon to the London Hospital, and who is the author of the ablest surgical treatise ever written on the subject, (in 1895) uses this language: "The commonest form of perityphlitis usually ends in resolution, and is amenable to simple medical measures. The majority of cases of perityphlitis get well without surgical interference of any kind." On treatment, Treves advises rest, opium, the colon cleared by

enemas, reduction of diet to starvation limits, and three to five leeches applied over right iliac region.

Hunter McGuire, in 1896, enunciates this doctrine: "I am not always in a great hurry to operate, but I am inclined to wait for the more acute symptoms to wear off and operate, if at all, after suppuration has taken place, or during the quiescent stage, between the attacks. I wish my voice was strong enough to call a halt to the men who say "operate—not this afternoon or to-morrow—but now."

Dr. Osler, in the last edition of his work on practice, informs us, "that while we cannot overestimate the gravity of certain forms of appendicitis, it is well to recognize that a *large proportion* of all cases *recover*. It is the element of uncertainty in individual cases which has given such an impetus to the surgical side of the disease." On the treatment Osler avers that "if we give less opium, we will have more use for the surgeon."

Israel T. Dana says: "In the treatment of typhlitis or appendicitis the general rule may be laid down that opium must be freely used, while active purgation is prohibited."

Mr. W. H. A. Jacobson, F. R. C. S., one of the ablest surgical authorities of Great Britain, August, 1895, writes me on the treatment of appendicitis: "A large number of the cases recover under medical treatment, probably from one half to two thirds, if wisely treated from the first. If there was anything like the same energy displayed in making a correct diagnosis, early, and at once enforcing absolute rest, etc., as there is in obtaining early operations, much that has been poured forth lately on this matter would never have been written."

In conclusion, Mr. President, and Gentlemen of the Association, I trust it will not be considered irreverent for me to tell you that the inspiration of this article is the earnest belief that a large element in the medical profession entertain a radically erroneous conception of the treatment of typhlitis or appendicitis.

This error has lead to the usurpation of a field by surgery, properly, I think, belonging to the domain of medicine.

The question is one of material concern to the human family, and without bias or prejudice, but animated solely by the laudable motive to serve our race and aid in arriving at the truth, we should labor patiently and intelligently in the solution of this problem. Every honest and conscientious investigator will applaud this sentiment, and enter the field of exploration with mind and heart fired with the holy ambition to find the truth.

I disclaim intention to impugn the surgeon's motive. I cheerfully accord to them ability, which the splendid achievements of the past, eclipsing anything accomplished by medicine, so eloquently avouches—also honesty of purpose to ascertain the truth. I mean no reflection, and there can be none, in declaring that the surgeon knows nothing of the early medical treatment of typhlitis or appendicitis.

Lord Brougham laconically said that he alone is an accomplished scholar "who knows something about everything, and everything about something." The Almighty never intended for one man to be both an accomplished surgeon and an intelligent physician. A few generations ago the most astute lawyer of Georgia, and at the bar known to be as unscrupulous in his methods as he was successful in gaining bad cases, was wont to boast of his honesty and inflexible loyalty to principle, but he was always silent upon his great ability as a lawyer. Gen. Grant, it is said, never spoke with any degree of pride of his exploits as a soldier, but he often mentioned with great unction his matchless ability as a financier. One of America's ablest sons as a surgeon, was extremely modest in the parade of his brilliant and daring deeds as a surgeon, but in a controversy on a purely medical topic, he always bristled up and assumed an attitude of defiance, asseverating, "You know I am a doctor."

Therefore, I am prepared to expect to-day some surgical hyperesthesia on the medical treatment of disease.

However, I derive consolation from the confident belief that the near future will demonstrate that the treatment of appendicitis belongs to the physician, and not to the surgeon.

In accepting the mandate from divinity to "lay hands on the sick" and conquer disease and pestilence, it is nowhere intimated that "if you drink any deadly thing," you shall find in the surgeon's knife an infallible antidote.

DISCUSSION ON THE PAPERS OF DRS. LLOYD AND RICHARDSON

Dr. W. H. ELLIOTT, Savannah: I wish I had an opportunity to prepare myself for a proper discussion of this interesting subject, but I have not. The foremost difficulty about appendicitis is to tell when and when not to cut. I try to keep my mind absolutely impartial between the physician and the patient on that point, and how far I do so, I do not know. I am thankful to hear stated on this occasion so clearly and precisely definite rules to guide us in the treatment of this most difficult of all questions, by one who is, perhaps, best qualified to judge from the extensive experience which he has had. I am vastly more interested in this practical point than I am in the Greek or the Latin name.

Dr. Richardson urges the importance of careful watching in cases of appendicitis. Yes, assuredly, but watching may beguile you to wait until you have to say "after life's fitful fever, he sleeps well."

I have found out by experience that when I cut through the abdominal wall, I know a great deal more about the exact location and extent of appendicitis than I do by careful watching by the bedside of the patient.

I do not think any man is fit to treat appendicitis who is not absolutely willing at any moment that may be needed to open the abdominal cavity. When your mind is perfectly impartial, then only are you fit to judge of

the question upon which hangs the issues of life and death.

Dr. WILLIS F. WESTMORELAND, Atlanta: Dr. Richardson, in his paper, made some very complimentary allusions to surgery in the treatment of appendicitis. He thinks that we know something about the surgical part of this disease, but very little about the medical side. When we remove from this paper the historical data, quotations from statesmen, etc., and consider the number of men who died before appendicitis was known, and when we add to the history of those, there is very little left in favor of the medical side. When he spoke of a certain gentleman who found appendicitis in such and such a per cent. of cases in the post-mortem room, I suppose he was quoting from a thesis presented a short time ago. If my recollection serves me right, the gentleman who examined all of these cases stated that pathological changes or erosions were discovered microscopically, and not by the eye. It is a question, under these circumstances, whether such changes could have been found ante mortem instead of post mortem.

I shall not dwell upon the diagnosis and treatment of appendicitis, except to say, that after all, it comes down to the question of when to operate. I do not think there can be any question as to the time of operating in any case of recurring appendicitis. I am quite sure from my own experience that in every case of recurring appendicitis, which has come under my observation, there have always been adhesions from previous attacks. Some cases have died when operated upon in the primary attack. If patients were operated upon the moment a relapse occurred, the chances would be far better for their recovery. We cannot always get a clear history in these cases.

A gentleman told me some time ago that he had colic or something of that kind. It was difficult to get a clear history of his case as to whether or not there had been any previous attacks of appendicitis.

I have had another experience with this disease. I have heard physicians speak of cases which they had cured. I have been in consultation with physicians on more than one occasion where there had been rupture of the appendix and a general suppurative peritonitis, where the condition of appendicitis had not been recognized. When a man says he has recognized appendicitis, treated and cured it when it has gone through the stage to the extent of which I have spoken, his statements in regard to cures should be taken with a grain of salt, because he certainly shows his inability to recognize the disease in its gravest manifestations.

As to the particular time of operating in the primary attacks, I suppose every surgeon varies to some slight extent. Each one has his own ideas in regard to it, but if I myself had the symptoms of appendicitis, whether it was the primary attack or not, I do not think I should allow the disease to get beyond that, but should have the abdomen opened the momen' the disease was diagnosed. I simply base my ideas upon the cases that I have come in contact with and upon the literature of the subject. I feel satisfied that the majority of surgeons who have examined the abdomen in these cases, will, as a rule, take the same position in regard to their own personal cases, if they had this disease.

In regard to the treatment of any surgical inflammation with opium, every surgeon knows that a full dose of opium given a patient will lessen his chances of recovery, particularly in abdominal work. There is no question but what one dose will create a desire for the second, and so on, by the effect it has on the patient. There is no question as to the injury that opium will do in traumatism. I think it is almost criminal to use it in those cases where we expect to do an operation afterwards.

Dr. JAMES R. WRIGHT, Augusta: I failed to hear the papers read a few moments ago, but like Drs. Elliott and Westmoreland, I feel the question of when to operate in

appendicitis, is one of the problems now before the profession. It is a problem which is not yet solved, and one which I do not think can be solved until we can get thorough and full records of the cases which have been treated medically. We read a number of reports of cases which have been operated upon, principally those that get well. We do not, however, often hear of those that are failures. If we could get a long series of cases, accurately reported, that have gotten well or have died without operation, then we would be in a position to tell when to operate. Any man who faces a case of appendicitis with the idea of operating upon it, confronts a difficult problem. In my experience, which has not been very extensive, I find that it is one of the most difficult operations that we have to deal with, for the reason that we do not find two cases alike, if we rely upon the text-books which give an anatomical description of it. It is an easy matter to cut down and find the appendix in some cases, but let it become inflamed with pus formation around it, the operation is rendered very difficult. When I have opened the abdomen, in some cases, along the border of the rectus muscles, I have seen the appendix bob up in the incision, but I have seen it much more often bound down by adhesions which were dangerous to separate. I still feel there is a great deal to do on the part of medical men in dealing with this trouble. As I have previously stated, when we can get statistical information as to the pulse, temperature, and general condition of the patient in a sufficient number of cases, we shall then be able, by investigation, to judge what we are to do.

Dr. J. W. DUNCAN, Atlanta: I had the pleasure of hearing both papers, and I think they are of great interest to the society. Dr. Lloyd gave us the history of five hundred and fifty-eight cases of appendicitis, a certain proportion of which were operated upon, and a certain number of the other cases were not. Of the five hundred and fifty-eight cases, if I remember rightly, only two hundred and thirty

five died; two hundred and five had not been operated upon, and thirty had been operated upon. He gave cases back as far as 1848, nearly fifty years ago, and if there has been as many cases of appendicitis for the past fifty years as there has been for the past year, averaging as many, there must have been something like one million five hundred thousand cases. He only reports two hundred and thirty-five deaths. I am satisfied that in my experience of thirty years, I have seen several cases of the disease and have treated them medicinally, only one of them having died. This case had a recurrent attack a few months after the primary one. He did not fully recover from the first attack. He was not able to go to work. The second attack lasted for months, and eventually pus was discharged through the lungs, and the patient died apparently of tuberculosis.

Another case I thought was typhoid fever at first. I am inclined to believe that many cases operated upon for appendicitis are nothing but typhoid fever, and that other cases are thought to be typhoid fever when they are really appendicitis. This case progressed very much like typhoid fever, with almost all of the symptoms of typhoid fever. Later a tumor was discovered in the right side, and was cut into, from which a pint or more of fetid pus was evacuated. The cavity was washed out from time to time and the patient made a good recovery. Other cases did not go on to suppuration, and I am satisfied were cured by medicinal treatment. I believe thousands of persons are alive to-day who have had appendicitis and have not been operated on.

DR. J. B. S. HOLMES, Atlanta: Dr. Westmoreland has so fully expressed my views in regard to appendicitis that there is little left for me to say. I regard it as a surgical disease and think it safer to operate as soon as the diagnosis can be made. The only cases that I have lost after operation were those that had been treated by medical means from two to four days. In each

of them opium had been freely used. If an operation is done early, before there is perforation, septic peritonitis, or adhesions, the mortality should be extremely small.

Deaver, who operates in every case, has operated upon two hundred and lost one. This is, I think, sufficient appeal for early operation. In one case upon whom I operated, opium had been used freely, but not with my consent, and by it his condition was so masked that with a normal temperature and pulse and an almost entire absence of pain, when the abdomen was opened a quart of pus gushed out. He had general septic peritonitis, and, of course, died. I can not too strongly and forcibly condemn the use of opium in the treatment of appendicitis.

I wish again to place myself on record as favoring early operation in this disease.

DR. W. H. DOUGHTY, JR., Augusta: I think the medical profession has never been united upon any one subject —not even vaccination, and, therefore, we are not apt to agree as to what to do with cases of appendicitis.

I have listened with a great deal of interest to the two papers, and I find that I cannot agree altogether with what was said. I do not believe that it is well to operate upon every case of this disease as soon as the diagnosis is made. If we could see cases of appendicitis in their very inception, then it would probably be safe to remove the appendix. The trouble is we rarely see a case in that stage. It would be safe to operate at that stage of the disease, for the reason that we would probably not have to deal with pus. It is too early for the formation of pus. At this time we have a comparatively clean condition within the abdominal cavity, and the mortality of operations performed under these circumstances ought to be small. On the other hand, when we see cases that have been in progress for twenty-four or forty-eight hours, then the conditions are such as to make it dangerous to enter the abdominal cavity. It is a difficult matter to know what to do in these cases. If we delay operation, occasionally we will

lose a patient, because rupture will take place, followed by general peritonitis and death. On the other hand, if we operate at once, we do not get the advantage of that bulwark which nature puts around the seat of inflammation in the shape of adhesions. I believe the examination of pus cases will show that just in proportion as the adhesions are formed and are not tampered with, in the same ratio will the result of operation be successful and satisfactory. Under these circumstances, as I say, it is almost impossible for one to know exactly what is the best thing to do. So far as I am personally concerned, I am not willing to operate on every case as soon as I see it. On the contrary, if the pulse and temperature of the patient are such as lead me to think that I can postpone operative interference, I wait with the expectation that adhesions forming around the seat of the disease will permit of opening the abscess and escape of pus without the danger of entering the peritoneal cavity.

So far as the medical treatment of the disease is concerned, I have seen a good many cases get well. Indeed, all my cases which I did not operate on, and which were treated with medicine, got well. The reason for this is largely because I have never been in too big a hurry to operate. But I have always recognized the fact that the acme of conservatism in the management of any grave condition is to be extremely radical when the time comes to pursue that course. I have operated on cases of appendicitis twenty-six or twenty-eight hours after the beginning of the attack. In one case of that kind I found pus. On the other hand, I have waited seven or eight days and then evacuated the abscess. Treatment I have pursued has been salines. I do not give opium in this condition, and I must confess that so far as I am concerned, while I have every respect for the eminent authorities quoted by Dr. Richardson in favor of opium treatment, I am not convinced of the propriety of using it. Dr. Westmoreland is correct when he says that opium is a bad thing to give. It is a bad thing to give in view of the fact that any case

of appendicitis may become one for operation. Nobody knows, and if we have a case in which we are likely to invade the abdominal cavity, it is a good thing not to have any opium mixed up with it, if it can be avoided. On the other hand, permit me to digress so far as to say that in the after-treatment of abdominal cases, while I do not like to give opium, I do not hesitate to administer it if I think it is necessary, and I have not had any reason to regret its use. I am not afraid of opium, in the common acceptation of that term, after laparotomy. I have always used salines in the treatment of appendicitis, and the results have been eminently satisfactory. Time and again I have had patients who were apparently in a condition where an operation was inevitable, yet promptly after the administration of salines they would improve and go on to recovery.

I do not know that it is wise for me to criticise the therapeutics of such eminent men as have been quoted, but I have never personally been able to understand why salines should be objected to upon the ground of their great increase of the peristaltic action of the intestines. I may be entirely wrong about it, but so far as my knowledge of that subject goes, I do not believe that the action of saline cathartics is to increase very decidedly the peristaltic action of the intestines. On the contrary, it is a matter of common observation that if one employs the common treatment that is used in this part of the country, namely, salts with minute doses of opium, in cases of dysentery, it will take but little opium to prevent the salts from acting. The dysentery gets well, showing that drainage into the intestinal canal has been accomplished, and this is the reason why salines cure dysentery, but the cure is obtained without the bowels acting at all. If this is true, then saline cathartics do not act very powerfully as increasers of peristalsis, and if they do not, then the objection to them upon the score of increase in peristaltic movement, falls to the ground.

Dr. MONTAGUE L. BOYD, Savannah: At the last meeting of this Association, held in Savannah, in discussing the question of appendicitis, I took practically the position taken by Dr. Westmoreland to-day, and I rise not to repeat that position, because I have not had any occasion whatever to change it, but to do justice to Dr. Doughty, who discussed the subject at the same time. The Secretary, in arranging the report of the discussion for publication, got the remarks of myself and those of Dr. Doughty a little mixed. Dr. Doughty took what is presumed by some a more conservative position, namely, that we had better wait and decide in each individual case when to operate. I took the position at that time, that if all cases could be diagnosed early, it would be wiser to operate at once, or as soon as a diagnosis is made. If diagnosis cannot be made, so as to get an early operation, then await developments to determine what course to take. I still hold that position, and I do not think it is necessary for me to give my reasons at this time, because the question is and has been so widely discussed in our medical journals and text-books and every physician and surgeon ought to be familiar with the reasons given on both sides.

The position taken by Drs. Doughty and Westmoreland with reference to the use of opium is eminently wise. Its use can do nothing but lock up the secretions of the bowels. It causes in a great many cases paresis of the bowels and prevents the alimentary canal, which is the sewer of the system, from emptying its contents, thus encouraging absorption of the micro-organisms which give rise to all the trouble in these cases.

Dr. GEORGE H. NOBLE, Atlanta: I think it is extremely unfortunate that the general practitioner should view this subject from a prejudiced standpoint. At least, that is the way I look at it. There are undoubtedly many cases of catarrhal appendicitis that are cured by purgation, others that are relieved temporarily. There are cases

that never reach the hands of the physician, but still that ought not to outweigh the fact that appendicitis cannot be separated from the treatment of peritonitis, and the treatment of peritonitis has been generally accepted. I, therefore, would say, that in the early stages, the treatment by salines is very appropriate; that when infection has taken place and softening has occurred in the appendix—in other words, when the disease has extended to the peritoneum, we have to deal with peritonitis. The question then arises, shall we operate or shall we continue medicinal treatment. It is a question of discrimination at that point, and right there many errors are made. I have seen a number of cases in which treatment has been continued from that point with the hope of relief until general peritonitis was well marked. I certainly concur in the opinion advanced that when the lesion does not yield promptly to purgation, we should operate.

Later on, where rupture of the appendix occurs, with discharge of its contents into the peritoneal cavity, we have what are called fulminating cases, which demand very prompt and active measures.

It is more important to treat a case of this kind by abdominal section than it is to close a gunshot wound of the intestines, and no one in this hall to-day would doubt the propriety of opening the abdomen and sewing up the latter. Unless we operate within a few hours after the rupture, the patient will die, and the general practitioner will say that the surgeon killed him. Why do so many of these cases die? It is because they fall into the hands of certain men who hang on until they see that the patient is not going to recover, and then call on the surgeon to shoulder the responsibility. The earlier we operate, the safer and better are our results. If we operate by mistake in the catarrhal form, it amounts to only an exploratory incision, and if the appendix is not much diseased, it can be left alone, or taken out with safety. This is a question of judgment.

Last summer I was a sick man. I had a good deal of pain in the region of the appendix, accompanied with considerable fever. Dr. Westmoreland assured me that my case was not one of appendicitis, yet I determined one night that unless the condition cleared up by the next morning an exploratory incision should be made, and if the appendix was found to be diseased, it should be taken away. I do not know how to express my conviction more strongly than in these words. The general practitioner should not be blamed for treating these cases beyond the point where an operation should be done. It can hardly be called reprehensible, because it is a question of education. As we advance in the education of medicine and surgery, these things will find their proper level.

It is only a few years ago that the operation for appendicitis was decried by many, and the disease was even doubted by others. I have heard prominent men declare that there was no pus nor exudate about the appendix. They did not believe in the operation, but after seeing a few sections, they were perfectly convinced. If the general practitioners who continue to treat to the end cases of appendicitis by purgation or by opium, as the case may be, were to see more operations done in the early stage of the disease, they would reach the conclusion that many of them were mistaken.

All I have to say now in regard to opium is, that the treatment of peritonitis, as stated, has been very well established, and that the old treatment of it by opium has long since passed beyond the river.

Dr. L. G. HARDMAN, Harmony Grove: It occurs to me that we can agree on one point—that is, these cases are both medical and surgical. There are cases of appendicitis that we have to operate on, and there are others that are purely medical. The point seems to be unsettled as to which case belongs to the medical man and which to the surgeon. Some of the gentlemen seem

to think that if they can make a positive diagnosis of appendicitis, an early operation should be done. There are some diseases that we are able to diagnose early in their progress, but there are others that are uncertain. Therefore, I think the safest plan in the great majority of cases is to let them alone until we can make a positive diagnosis, or until the disease has made further progress. Why? In the first place, a great many cases of appendicitis get well without surgical interference. Personally I have not had a great deal of experience with this disease. I have, however, seen about fifteen cases, and of this number only two were operated on, all of which recovered, both those that were operated on and those that were left alone. In the cases that were operated on suppuration had occurred, and one of the cases is with us to-day, a medical man in this hall. In his case there was suppuration. The walls of the abscess were so protected and bound by adhesions between the two layers of peritoneum that we had to treat nothing but an ordinary abscess. We opened the cavity, drained it, and succeeded in curing the patient. It occurs to me that it is not safe to operate early upon these cases, for the reason that a great many of them get well. In the second place it is not an easy matter to decide positively always whether we have a case of appendicitis to deal with, or some other intestinal trouble.

As to medical treatment, the use of opium and salines, I think they should be combined. It occurs to me that the profession is inclined to swing from one side to the other. At one time I remember very well when Alonzo Clark advocated opium treatment for intestinal trouble in connection with veratrum. To-day the opium treatment is considered dangerous. I am inclined to think we have swung too far to the other side. I believe in the use of salines in the disease only, as they relieve engorgement, congestion and remove the foreign bodies in the intestine. Following that, we know that there is great pain and shock, if we leave the patient in that condition.

I am inclined to believe that many of the cases ought to be operated on, simply because we cannot carry out medical treatment, and because the pain and nervous disturbances are so marked that the patient tosses from one side of the bed to the other. Following the administration of salines, enough of some narcotic should be used to relieve pain. I believe this is a safe plan. It is going to the extreme to say that every patient that is to be operated on for any disease should never have opium in any form. On the other hand, it is a great mistake to go to the extreme of giving every patient who has inflammatory disease opium to its full extent, as recommended by Alonzo Clark. I believe the most reasonable and rational position to take is a middle ground.

Now, in one of the cases that I speak of, where suppuration occurred there was an opening into the intestinal canal at the time the abdomen was prepared for operation. On my arrival I decided it was not a case for operation, and that it was best to let the patient alone. Nature had established drainage; the weak point had showed itself. By introducing an exploring needle in the abdominal walls, pus was found to be present, although an opening was established. Patient recovered.

If I mistake not some distinguished gentleman advocated in Atlanta sending for a surgeon as soon as evidences of rupture had occurred with a view of opening the abdominal cavity at once. It occurs to me that it is not necessary for us to wait for anything of that kind. By introducing an exploring needle, we can soon tell whether we have pus in the appendix or around it. Why not insert the needle and see? If you have pus present, why wait until rupture takes place?

I refer above to those who advocated putting a nurse or some competent person by the bedside to watch the patient and as soon as evidence of rupture of the abscess in the abdominal cavity occurred, to send for the surgeon for immediate operation.

Dr. SAMUEL LLOYD, (closing the discussion): I shall only detain you for a few minutes. It seems to me that the general trend of this discussion has been in the same direction, and that we have all reached practically the same conclusions. The views advanced by the reader of the paper following my own are not far at variance with those adopted by many surgeons, for the reader does not advocate medical treatment alone, but claims that when a case has gone on to suppuration, then operation may be advisable. I have to take issue with him in regard to his statistics. He has quoted what is apparently surgical opinion on the question, and claims that there is practically no medical literature, but he includes Fitz and Pepper among the surgeons; but Fitz and Pepper are physicians, and the records of the New York Pathological Society will show that on the medical side of this subject we have decided opinions coming from the Loomises, Delafields, Flints, and so on through the leaders of metropolitan thought up to the present time, yet in only a few instances, of late years, has appendicitis been considered a purely medical disease. In collecting my own statistics, as one of the speakers has said, there were 295 deaths, 59 unaccounted for, 205 without, and 31 with operation. In collecting these statistics I was anxious, first, absolutely to obliterate all personal bias. We all recognize the fact that bias in our daily work is natural. We become enthusiastic in certain lines, and that controls us very naturally in searching through records and studying statistics, and even figures have sometimes been made to lie. In order that my personal bias might be thrown out, I sent Dr. Henry Roth and my stenographer to the Academy of Medicine with instructions that they were to tabulate for me all the cases of appendicitis they could find from the beginning, and get me all the different points in the histories. They had no definite idea as to what I was after. My object was to get together as many medical cases as I could, in order that they might be compared with an equal number of surgical cases, and the results noted. These

results are shown in my paper. We have by no means finished. The 205 deaths were largely cases in which opium was used. The records go back as far as 1812. We have thrown those out of consideration where the lesion proved to be in the cæcum, and not in the vermiform appendix. We found there were certain pathological lesions leading to death, and that three fourths of these cases were not remediable by any means except removal of the appendix—that is, we had abscess in a vast majority, fecal concretions of sufficient size to produce erosion, and foreign bodies covered with fecal accumulations in another series, and peritonitis and the complications that lead to septic peritonitis in still another, making up 79 per cent., and leaving only 21 per cent. of these cases to which any other than surgical treatment was applicable. There is a reason for the increased frequency of appendicitis in males. Bryant has had a large number of cases examined, and found that the appendix is $\frac{1}{10}$ of an inch larger in diameter in the male than in the female. My own experience with opium has been one which is not pleasant to record. The early years of my life were spent in association with an uncle who was a general practitioner, and who believed in the opium treatment, and who considered typhlitis, perityphlitis, and appendicitis as strictly medical cases. One case, however, will be an ever present regret to me. One of the best men I was ever associated with, a man who was a leader in surgical thought, and who had been a general practitioner, I believe gave up his life to the opium treatment of appendicitis. I refer to the late James L. Little, of New York. I was associated with him when he had a recurrent attack of colic, such as he had had for years, and when he went to bed with signs of increasing pain it was recognized that there was a lesion of unusual severity somewhere in the abdomen, but he was put on the opium treatment. The collapse occurred one day while I was out attending to the usual duties, and I returned to find the colleagues associated in the case gathered at his bedside, the Doctor vomiting stercoraceous matter, abdomen dis-

tended, pulse feeble, temperature below normal, and perfectly conscious. He met me with the expression, "It is all over; it has ruptured into the peritoneal cavity." The next day we held a post-mortem. What did we find? Nothing but a small concretion that had eroded through the appendix. In my opinion his life might have been saved had we not produced a thorough paresis of the appendix, and prevented the displacement of the concretion by the muscular action of the appendix by the use of opium. At any rate the symptoms would have been sufficiently marked to have led to operative interference. That was in the early days of appendicitis, over ten years ago.

There is one point about the statistics in Dr. Richardson's paper, and that is, they were largely drawn from surgical and medical sources in Great Britain. If the gentlemen here have taken pains within the past five or six years to study the books which have issued from the English press, they have been surprised to find the unanimity of opinion and the general acquiescence of English observers in not accepting American views, particularly in intestinal work. It is surprising to find them occupying positions that American surgeons have advanced from by some years. You will notice this particularly, for instance, in anastomosis of the intestine. You will find an occasional reference to the Abbe or Senn Plate, and once in a great while to the Murphy Button, but in some of the English books these methods of anastomosis are not even mentioned. From an American point of view, I do not place a great deal of dependence upon statistics drawn from these sources. They are biased by the ultra-conservatism existing in Great Britain, and which is to a certain extent a distinct prejudice against things emanating from the American colonies.

One other point I wish to refer to, and upon which I must express a decided difference of opinion. Some one in the discussion urged the use of the aspirating needle in making a diagnosis in cases of appendicitis. All I have to say is—do not put a needle through the peritoneum.

If you do you will live to regret it, as I have; for the point of the needle traveling through the perfectly normal peritoneal cavity may allow several drops of pus to escape above the point of the lesion, which falling upon a proper field may give you a septic peritonitis. If the abscess is almost ready to rupture, the puncture you make with the needle simply invites it. The pus oozes through that point, as an abscess on the outside oozes through the puncture where the skin is thinnest. It is infinitely safer to use the knife for exploratory purposes, and if it is an abscess treat it at once, or allow agglutination to occur around the edges, as the case may be. Surely you run less risk of inviting septic peritonitis with the scapel than you do with a good-sized aspirating needle, and a small-sized needle will very often give no information, as the pus is too thick to be drawn through.

I think the gentleman who stated that he had treated so many cases with only one death, is to be congratulated, for his experience has been entirely different from my own, or from that of any of my colleagues with whom I have compared notes. There are one or two points which can well be emphasized in this discussion. I would not operate in a case of mild appendicular colic. If the patient improves, I should wait and see whether he has a recurrence. If within twenty-four or thirty-six hours after the beginning of the symptoms a free evacuation of the bowels can be obtained by means of salines, if the pulse is of good calibre, if the condition of the patient does not show marked sepsis, I should wait, and if four or five hours later I found the same condition of things, with a decreased amount of pain, and decreased tenderness, I should still wait, and treat the case in a tentative way. But on the first indication of progressive symptoms I should operate. The dangers of delay were impressed upon my mind very forcibly a few days ago. A young Hercules—for that is the only expression to use—in a university town near New York, was engaged in some midnight frolic, when suddenly he felt a severe pain in the

right iliac fossa. He went to bed with a marked attack of appendicular colic apparently, temperature 99, pulse 100. The pain was not severe and was taken for an ordinary colic. He was treated with opium. His temperature, day by day, varied little, but his pulse increased, his tongue became more coated, and the bowels refused to act. About this time a tumor appeared in the right iliac fossa. Symptoms of appendicitis were going on, and they were slowly progressing. The tumor in the right iliac fossa became more marked, pulse reached 120, temperature 101, tongue entirely coated, tenderness in the right iliac fossa extremely marked, complete flexion of the leg, no evacuation of the bowels, and tenderness over the bladder on attempting to urinate. On the 8th day I was sent for, and left New York at once, reaching the patient early in the morning. The gentleman in charge of the case said that I could go back to New York on the next train, as the patient's pulse was normal, and the temperature 97½; that they had reached that point but a little while before my arrival. I answered that I had but one suggestion to make—to get the patient on the operating-table as soon as possible, and open that abdomen at once, for the abscess had broken. The operation was performed, the abdomen opened. The abdominal wall was œdematous throughout; two abscesses underneath were found, one of which had ruptured into the general peritoneum. The appendix had completely separated, and I defy any surgeon in this room to make a stump as beautiful as the stump that appeared on the walls of this cæcum. Fecal concretions were removed from these abscess cavities, which were too large to have escaped from the appendix except by perforation. The abdominal cavity was washed out, but the patient died inside of twenty-four hours of septic peritonitis. I believe that this case was sacrificed to delay, and I believe that these cases must be operated upon early. The case of appendicitis that does not yield to medical treatment at once should be operated upon, particularly

where the symptoms do not improve within twelve, twenty-four, or thirty-six hours.

DR. RICHARDSON (closing the discussion): I am profoundly grateful for the extra time already so graciously accorded me by the Association, and I shall be very brief in conclusion. I personally thank Dr. Lloyd, of New York City, for his very able paper on the surgical side of appendicitis to which we have listened with so much pleasure and profit. He concedes that he would treat his cases of appendicitis medically for twenty-four or thirty-six hours. If he would extend the treatment of his cases to forty-eight hours, we would be nearer together.

Should the method of treatment I advise fail to ameliorate the patient's sufferings in forty-eight hours and his condition have grown worse, I would advise surgical interference. Of that class of surgeons who always operate for appendicitis as early as possible in the beginning and during the height of the inflammation and before the disease has terminated in suppuration or perforation, I respectfully ask that they improve their mortuary statistics and diminish the death-rate in this class of cases. The allegation has been made that I have quoted from "dead doctors, lawyers, statesmen, and warriors." I beg, in closing this discussion, now to quote from a dead, though classic author of romance, Le Sage. In "Gil Blas," we are told that Dr. Sangrado treated all diseases by bloodletting. Unfortunately, most of his cases died. His friends remonstrated with him and importuned him to change his treatment. To them he replied: "I would gladly do so, my friends, but I have written a book extolling the virtue of the lancet and I can not, therefore, change."

SUPRAPUBIC OPERATIONS FOR FIBROID, WITH REPORT OF CASES.

BY D. D. QUILLIAN, M.D., ATHENS.

The summer of 1895 found me with several cases of fibroid tumor to treat. They were for the most part poor people not possessing the means to go to a private hospital for treatment, or to a large city to a charity hospital.

I was confronted with this dilemma, shall I use palliative measures and allow my patients to die, or shall I venture to do what most operators advise against, operate in private homes and take chances. I determined on the latter course, believing as I did, that if you had a clean patient, clean hands, and clean instruments, you can have as aseptic a wound in a private home, be the surroundings ever so filthy, as you can get in a hospital or sanitarium. That in this belief I was correct, the sequel will show to any unbiased mind.

The first step before beginning the operation is to prepare the patient. This is done by first requiring the patient to bathe the whole body thoroughly with soap and water. This should be repeated daily for three or four days prior to operating. The patient should take no solid food for two days before, and the bowels should be thoroughly emptied by calomel and salts. Before beginning the operation the abdomen and vagina should be thoroughly washed with antiseptic solutions, the pubes shaved, the instruments boiled, and the hands and nails thoroughly cleaned. To insure thorough asepsis I use seven antiseptic solutions, finishing with boiled hot water. The field of operation is surrounded by towels previously boiled. An incision is then made in the median line,

first through the skin, the muscular layer, or linea alba, and when the peritoneum is reached, this is pinched up by tissue forceps and opened. When inside the peritoneum the incision is enlarged with scissors as occasion may require. Adhesions, if any, are carefully torn loose, all bleeding points being ligated with aseptic silk. The tumor is then removed as indications require. If attached by pedicle it is ligated and cut off, if intramural, the cervix is amputated, leaving flaps which are united by sutures. If there is much oozing from the adhesions torn loose, the abdominal cavity is flushed thoroughly with sterilized water and all accumulations removed, the peritoneum then closed with catgut, the muscular layer with silver wire, and the skin with buried silkworm gut, the wound dusted with iodoform, the usual antiseptic dressings applied and the patient put to bed. She is given nothing but hot water for twelve to twenty-four hours, after which she is given liquid nourishment, preferably buttermilk.

Such in brief was the technique in the following cases: These were not selected cases, but apparently very unfavorable ones, they submitting to operation in a spirit of desperation, as without it death was inevitable in a short time.

The following operations were done by Dr. I. H. Goss and myself, assisted by Drs. Conway and Holliday.

CASE I.—Lou T., mulatto, thirty-five years old; has had one child now eighteen years old. Has had tumor four years, confined to bed past six weeks; suffers greatly with pain, necessitating the constant use of opium. Made incision in median line; found innumerable adhesions, which were with difficulty broken up; intramural fibroid weighing ten pounds. Removed tumor with ovary and tube. The right ovary was absent, and only rudimentary tube on right side—a rare condition. Amputated cervix and united flaps, closing abdomen as described above. Time of operation, two hours; used the usual methods to lessen shock.

Patient's recovery uninterrupted except for two cellular abscesses, caused by transfusion of saline solutions. Two months after operation the patient opened a restaurant, and has been engaged in this business since.

CASE II.—Minnie U., age thirty-two, mulatto, married, no children. Has had tumor five or six years. Operated on September, 1895. Incision in median line; found multilocular fibroid resembling an artichoke in shape, weighing twelve pounds, and numerous adhesions, which were broken up. Ovaries and tubes removed with tumor, cervix amputated and flaps united, and abdomen closed as above. Time of operation, one hour and fifty minutes. Recovery was uninterrupted except for shock, which was extreme, increased, no doubt, by difficulty in breaking up adhesions, which prolonged operation. Patient has been at her usual occupation, cooking, since recovery.

CASE III.—Q. A. W., mulatto, mother of one child seventeen years old. Has led a dissipated life for past ten years. Very much emaciated; confined to bed for the most part on account of weak, emaciated condition and the enormous weight of tumor. Menstrual flow very irregular for past year, good deal of swelling in lower limbs from one to two weeks before menses came on, very little pain after flow begins; has had several attacks of severe pain, followed by extreme tenderness just below the umbilicus. The tumor in this case was very large and the abdominal distention was enormous. Operated on October 2, 1895. Time, one hour and fifty minutes. An incision was made in the median line extending from just above the symphysis to three and a half inches above the umbilicus; full length of the incision was about eighteen inches. Found numerous adhesions and the omentum adherent to the entire front of the tumor, and so much stretched by the growth that it was torn in shreds, thus accounting for the severe attacks of pain and tenderness to which the patient had been subject. The shreds were held by enormously enlarged omental veins, they

being considerably larger than a cedar pencil. The adhesions were broken up, the omental veins ligated and the entire omental mass, weighing about three pounds, covering the tumor, was cut off. The tumor, which weighed thirty-two pounds, was attached to the right anterior surface of the body of the uterus by a pedicle about two inches in diameter. The pedicle was ligated and the growth cut off. The appendages, being healthy, were not disturbed, save to free the tumor from adhesions to the broad ligaments. The abdomen was thoroughly flushed with water previously boiled, and the wound closed as described above. The patient had very little shock, temperature not going above one hundred and a half degrees Fahrenheit, and was normal after the second day. Her recovery was perfect. She passed water without the use of the catheter, and bowels moved regularly without purgatives; in fact, no medicine whatever was given after the operation except a simple cough mixture, she having a slight bronchial cough following the ether. She was up walking about the room in four weeks, she gained flesh rapidly, her menses became regular, and she has since been in perfect health and at her usual occupation, washing and ironing.

I wish you to note that in none of these cases was the drainage tube used, notwithstanding the size of the tumors and the numerous adhesions which were encountered. Neither was there one drop of pus formed in any of them. Union by first intention was perfect in each case.

These facts seem to prove :

First. That pus indicates faulty *technique*; that in some way you have contaminated your patient. A stitch-hole abscess is inexcusable and is impossible if the *technique* is correct, and the Marcy buried sutures are used.

Second. That the drainage tube is seldom if ever needed in abdominal operations if the work is done in a thoroughly aseptic manner.

Third. That operations of any kind can be performed in private homes, even with filthy surroundings, as these cases were all operated upon in dirty negro cabins, with as much impunity as in the cleanest hospital in the land, provided proper antiseptic measures are employed.

MODERN METHODS IN THE TREATMENT OF SKIN DISEASES.

BY BERNARD WOLFF, M.D., ATLANTA.

The progress of medical science in the last score of years has been as marked in the province of dermatology as in other branches. The classification of skin diseases has been simplified. New groups have been formed as more has been ascertained of the members of them. The advance of the therapeutics of this branch has been particularly energetic and conspicuous. New remedies of great value have been introduced, approved methods of applying them have been employed, until now the dermatologist has the means at his disposal to combat with greatly increased prospect of success the various diseased conditions of the integumentary system which he encounters.

It is impossible, in a paper of such narrow limits, to more than glance at the most salient features of this progress, and to bring to your attention a brief account of the methods now in vogue in the treatment of the commoner forms of skin disease.

The remedies selected for use in cases of disease in the skin can be employed in several ways, as in baths, lotions or washes, ointments, pastes, plasters, and soaps.

Balnea, or baths, are of two kinds, the vapor and the simple medicated bath made to resemble natural mineral waters. The chief purpose of the bath is, besides cleanliness, to bring about a healthy activity of the skin, to remove scales, soften infiltrated areas, increase the elimination of waste products through the skin, and to relieve irritable conditions of the skin. Baths are especially

valuable in the treatment of parasitic and syphilitic affections.

Vapor-baths are carried out by means of bath-cabinets, in which the patient sits and is subjected to the action of the remedy in a vaporized state, at a temperature of 90° to 100° Fahr., for fifteen minutes or longer. Various drugs may be added to the bath, the chief ones being tar, sulphur, and calomel.

The simple liquid bath has a wide range of usefulness. Starch, tar, sulphur preparations, salt, and a number of other substances may be added to the water to meet the requirements of the case. The continuous water-bath of several weeks duration has been recommended by the elder Hebra for the relief of some inveterate skin affections, as pityriasis rubra, psoriasis, etc.; but such a plan has failed to become popular in this country. Natural mineral-water baths, so highly regarded by the laity, are of very questionable value as curative agents in skin diseases.

Lotions are preparations in which the remedy or remedies are held in a state of solution or suspension in water, alcohol, or oil. They are best adapted to be used in the acute and sub-acute states of the disease of the skin. To get the full effect, the lotion should be kept in constant contact with the seat of the lesion by the application of cloths soaked in the solution and bound to the part, or by very frequently repeated sponging or moistening of the part. Lotions are of great value in the relief of itching and irritability of the skin and in squamous affections of the scalp. They are soothing, stimulating, emollient, etc., as the case may be. The remedies best adapted to use in the form of lotions are the class of antiseptics, antipuritics, reducing agents, as sulphur, ichthyol, resorcin, and the parasiticides.

Ointments and pastes are more used than any other forms of preparation in the therapy of skin diseases. The base of an ointment is a matter of importance. Upon it largely depends the benefit to be derived from the med-

icament. Formerly only lard and wax were used. Now we have a greater number to choose from, and more elegant vehicles. Of these vaseline, agnine, lanolin, adeps lanæ, and resorbin are the most useful. Agnine is obtained from the fat of sheep's wool. It is cheap, but has a disagreeable odor and an unattractive color. Lanolin is purified agnine. It is ivory-colored, stable, very difficult to saponify, mixes readily with water, does not become rancid, and is said to possess the quality of being absorbed through the skin to a remarkable degree. It is rarely used alone, being too tenacious, so that it must be thinned with water, oil, or vaseline. It has slight curative powers, and is bland and unirritating. Adeps lanæ has properties similar to lanolin, but differs from it in being a definite chemical product.

Ledermann (*Monatshefte für Prakt. Derm.*, July 15, 1894) introduced a new excipient, called by him resorbin. It is composed of refined almond oil emulsified with distilled water, with the addition of a small quantity of yellow wax and lanolin. It is claimed to possess to a very high degree the power of penetrating the skin, very slight friction being required.

Casein ointment has been put upon the market by Beiersdorf, of Hamburg, on the suggestion of Unna. It is very elegant in appearance, but my slight experience with it has led me to regard it as being incompatible with too many substances to be of much practical value.

Ointments, with whatever base, may be cooling and lubricant, penetrating, stimulating, or continuous, as Hebra's diachylon ointment, which is scarcely more than a spread plaster.

To overcome the objections of uncleanliness and lack of sufficient adhesive power of ointments to secure constant and intimate contact with the afflicted areas, various pastes of puffy-like consistence have been devised. Pastes resemble ointments in the facility with which they may be applied, but differ from them in becoming dry and ad-

hering firmly. One of the most generally useful is Lassar's paste, the formula for which is:

℞.	Acid salicylic,	gr. x.
	Vaseline,	℥ ss.
	Zinc oxid,	
	Pulv. amyli,	aa ʒ ij. *M.*

Boracic acid may replace the salicylic or resorcin, as in Ihle's modification. This paste is of great utility and can be used on any part of the body with the exception of the palms, soles and eyelids. The basis of this paste is starch and vaseline. Instead of starch may be substituted infusorial or diatomic earth, which is extremely porous and makes a fine homogeneous paste with vaseline.

The following paste is of great value in the treatment of seborrheal affections:

℞.	Zinc oxid,	parts 6
	Sulph. præcip.,	" 4
	Terræ siliceæ,	" 2
	Adipis benzoat,	" 28 *M.*

However valuable these pastes may be, they cannot approach in usefulness the gelatine preparations of Pick and Unna.

Unna's formula for zinc jelly is the following:

℞.	Gelatin,	15.0
	Zinc oxid,	10.0
	Glycerin,	30.0
	Aquæ,	40.0

When cautiously melted and combined this makes a mass of leathery consistence—very pliant. When about to be used, it must be placed in a vessel and immersed in hot water until it is liquefied. It is then painted on the surface with a stiff brush and dabbed with a bit of loose cotton to facilitate hardening. When hard it is smooth, dry, pliant. It can be used in any locality, and is extremely efficient. It excludes air and hastens the absorption of infiltrated areas, allays irritation and promotes

healing. It is to be most highly recommended in the treatment of ulcers of the leg and all stages of eczema in all localities. The cardinal principle of the therapeutics of skin disease is to secure absolute and continuous application of the remedy to the affected parts, otherwise the treatment will be very slow, or altogether ineffectual. Pastes come very near fulfilling this requirement; but there are still better means of accomplishing this aim and doing it in a much more thorough manner. Passing over the use of collodion as a vehicle, and traumaticine, a solution of gutta-percha in chloroform, we come to what is, without doubt, the ideal method of applying a remedy in the treatment of skin diseases. It is found in the gutta-percha mull, which belongs to the class of, but is much superior to, the ordinary spread plasters. In the gutta-percha plaster mull, the medicament is dissolved in a minimum quantity of a suitable vehicle, and is spread on an extremely thin layer of gutta-percha, backed by coarse gauze. The medicament is so disposed throughout the mass that the smallest square of a meter roll will contain its exact proportion of the total quantity of medicament in the meter roll. An exact dosage is thus secured. They are easily applied. The protective gauze is removed and the surface of the plaster is applied directly to the skin, holding it there for a short time until the body-heat affixes it. I have not time sufficent to devote to a detailed account of the manifold good effects of this ideal preparation. Suffice it to say that it may be used anywhere on the body, and with the appropriate remedy incorporated, in any disease of the skin which is not too extensive. It fulfills all indications for treatment in the way of insuring close and prolonged contact, deep and powerful therapeutic effect, and is, moreover, cleanly in the extreme. The sole obstacle to its general use is its expense. If carefully and economically used, this will not be regarded as an insuperable obstacle.

The use of soaps is of some importance in the treatment of diseases of the skin. Only neutral soaps, or those con-

taining an excess of unsaponified fat are to be recommended. Free alkali is destructive to the protective horny layer of the skin. The over-fatty soaps make commendable vehicles for various medicaments, the most frequently used of which are hydronaphthol, resorcin, sulphur, tar, corrosive sublimate. They act as emollients, and are of value only as adjuncts to more energetic treatment. The use of soaps has the effect to encourage cleanliness on the part of the patient, and cleanliness is one of the prerequisites of successful treatment.

The impetus given to the study of animal extracts by Brown-Sequard, Pasteur, Hammond, and others has been felt in the province of dermatology. Thyroid extract, which has effected such miraculous cures in the treatment of myxedema and cretinism, has been given a thorough test of its value as a curative agent in certain intractable skin diseases.

The results, with an exception in the case of lupus, which seems to have been somewhat influenced, have been entirely negative. Psoriasis and xerodermia have not been benefited by its use, contrary to expectation. Tuberculin has been tried in tuberculosis of the skin, but has now been practically abandoned.

Electricity as a therapeutic agent has a place in resources of the dermatologist. Good effects have been observed from the use of the current from the static machine in cases of eczema, and galvanism has been successfully employed in the treatment of acne, alopecia areata and a number of other cutaneous disorders. The principal use of electricity in the province of skin diseases is found in its employment for the removal of superfluous hairs and of new growths of small extent. Electrolysis offers the only certain means of completely and almost painlessly destroying hairs and preventing their recurrence. A little experience with the use will readily demonstrate the fact. I use, instead of the ordinary steel needle, the bulbous-pointed needle devised by the late P. S. Hayes, known under his name. The blunt point

removes to a large extent the danger of piercing the wall of the hair follicle, an accident that is very apt to occur in using the sharp needle, in which case the papilla is not reached and the treatment fails of its purpose. The removal of nævi, moles, warts, and small malignant new growths of the skin by electrolysis is a well-established surgical procedure.

The above brief resume of the modern methods of treatment of skin disease will, I trust, indicate in some measure the progress which has been made. There is need of much more before we shall be contented with the methods at our command. It is to be hoped that continuous research along this line will be fruitful of results in the future as it has been in the last decade.

DISCUSSION ON DR. WOLFF'S PAPER.

Dr. M. B. HUTCHINS, Atlanta: It is rather hard to discuss this paper, because it deals chiefly with general principles. Dr. Wolff has covered quite thoroughly the modern local methods in the treatment of diseases of the skin. All of the remedies he has mentioned have been recommended and have been found by some dermatologists to be of use, while those of more advanced ideas do not look favorably upon some of the things which he has mentioned. The modern treatment of diseases of the skin should have embraced the internal as well as the external treatment. It has taken me about six years to get out of the rut of treating all skin affections locally. I am more and more convinced that we have got to consider the constitution of the patient when prescribing for the local affection, although if I had to take a choice between the local and internal treatment, I should take the local in preference to the internal in 99 per cent. of skin affections.

The methods of making applications which will stay on the skin, such as pastes, plaster mulls of Unna, I have not given much trial. Frequently the soaps are of very little use. In the case of bichloride of mercury the chem-

ical change produced renders the remedy inert and at the best we only get with these soaps a very slight superficial action. You know the horny layer is a coat of mail and it is almost impossible to get any absorption through the unbroken epidermis. In the treatment of syphilis by inunctions of mercury, our success has lately been said not to be attained by the absorption of the mercury through the skin, but by the inhalation of the vapors from the mercurial ointment.

With reference to gelatin paste, I have used it a little and find it objectionable, because it sticks to everything with which it comes in contact, especially woolen goods.

Some one (*Monatshefte für Praktische Dermatologie*) recommends that a chromic acid solution be painted on the gelatin in order to make a hard, smooth surface, believing that we may better the application in that way.

The plaster mulls have been objected to on account of having a gutta-percha base, and of course, we would have to select the cases in which to use them. I have not attempted to use them, but have relied upon ointments, lotions, and other forms of treatment which are not so recent, plasters being hard to get.

With reference to electricity, it comes directly in the line of my own paper, of which Dr. Wolff doubtless was not aware. I have nothing to say about it except that in some cases of acne on young ladies' faces I have got beneficial results from using the constant galvanic current on the cheeks where the eruption occurred. The stimulating action which takes place encourages the glands to throw off secretion without allowing them to remain sluggish, thus blocking up the follicles, this being the first stage of development of acne.

I have derived some benefit from the use of the sponge electrodes, regardless of the application of the poles, first on one side, then on the other.

Dr. WOLFF (closing the discussion): I purposely omitted from my paper any mention of the general treatment

of diseases of the skin, because there is no special general treatment. The general treatment of skin disease is the treatment of disease in general. There are certain morbid conditions of the system which have to be combated, and which are common to other diseases, having no special reference to diseases of the skin.

As to the matter of absorption of ointments by the skin, it is undoubtedly a fact that a certain osmosis occurs through the skin. Dr. Hutchins says that the specific influence of mercury is obtained by the inhalation of the fumes rather than from any absorption of the mercury through the skin. Mercury is not volatile. That might apply in the case of iodine. If a person is immersed in water for a certain length of time his thirst will be allayed, showing that there has been absorption through the skin, of the water.

An objection raised by Dr. Hutchins to the use of soaps was, that metallic salts, particularly bichloride of mercury, are rendered inert by certain chemical changes, with fatty acids, but in the case of a soap with an excess of fat, we get the mercury practically in the form of an ointment. That is about the sole influence of soap in the treatment of skin diseases.

It would seem that Dr. Hutchins is a convert to the theory of general causation of skin diseases.

In my opinion, the vast majority of diseases of the skin are local in origin. Morbid conditions of the system at large play a role in the etiology of these affections which is usually secondary and explainable by causing a lowered vitality and a diminished power of resistance on the part of the skin to external sources of irritation. I would, therefore, place the local in advance of general treatment, but would not entirely disregard the latter.

THE PERSONAL EQUATION IN THE USE OF THE FORCEPS.

BY EUGENE R. CORSON, B. S., M. D., SAVANNAH.

My object in presenting this paper is to plead for the intelligent and skillful use of the forceps, and to show certain fallacies in the arguments of those who decry its use. From the beginning of my professional work it has been my lot to get many cases of difficult labor, and I came early to look upon this instrument as one of the most useful in our *armamentarium* and as a great blessing to many suffering women. Its application never seemed to me to be a difficult thing to learn, nor have I found any difficulty in deciding when to use it, or to map out in my own mind a definite *schema* of the indications which call for it.

I have always felt indebted to the teachings of Robert Barnes, whose "Obstetrical Operations," published over twenty years ago, gave me the clearest idea of the management of difficult labor. This book, I am sure, must be placed among the classics in our literature; and, notwithstanding the immense strides which obstetrics has made in the last twenty-five years, strides which have kept step with the advances in the whole domain of surgery and medicine, this book can be read to-day with immense profit by student and practitioner. I am glad to see that a little book on "Difficult Labor," by G. Ernest Herman, a concise and true epitome of the present state of obstetrics, draws largely from the "Obstetrical Operations." And with the exception of the larger field of Cæsarean section, due to improved surgical *technique* and antiseptics, and to the establishment of the operation of symphysiotomy, whose application has been so thoroughly

tested by the French school, the general indications for the forceps are practically the same to-day as they were when Barnes wrote his book. To be sure, we know better the dangers of the forceps when misapplied; we know better the evil results which follow this misapplication, and we know better how to guard against the all-important sepsis; we have, perhaps, a slightly better model, and we have the principle of the axis-traction, introduced by Tarnier, and yet the large majority of our cases fall under the general indications laid down twenty-five years ago.

It would be idle, indeed, for me to lay down these general indications as they are accepted to-day. They are plainly and succinctly set forth in our text-books on the subject. I contend, however, that these indications are really the indications in the abstract; that they must vary more or less according to the skill and ability of the operator, and that, therefore, the utility and value of the forceps is a variable "x," depending upon the operator. The exact conditions in each case can never be exactly known or predicted. The operator, to know the problem at the time, must not only know the conditions of his patient, but he must know his own fitness or unfitness for operating. The patient remaining the same, the one case may call for an operation, while the other contraindicates it. In attempting to lay down these definite indications, I find the authorities omit this important factor in the consideration of the case—this question of the operator himself. Take any tool, and the more skillfully it is handled the more useful and efficient it becomes. An ordinary jack-knife, in the hands of a Swiss carver, changes a block of wood into a work of art, while the same instrument in the hands of the ordinary boy brings blood and pain. A good operator with a few instruments accomplishes more than a poor one with any amount of surgical *armamentarium.* Therefore, I say, the important question is, can you use the forceps properly? rather than, are they indicated in this case? for in the present state of our knowledge of obstetrics the usual indications are

clearly and precisely laid down and are easily enough learned, while one's individual skill must be acquired and consciously realized. And this is usually the last thing considered. Given a case with certain conditions and a good operator and I should say operate, while in the same case with a poor operator, I should say wait. A case of stone had better wait a reasonable time for a good operator than be cut at once by one who knows not his work. While "ventral suspension of the uterus" for malposition may be a legitimate operation in the hands of an operator like Howard Kelly, who has just reported a series of two hundred cases without a death, the same operation in the hands of a tyro, or one unfitted for any operative work, is contraindicated. Now, the same reasoning applies, *mutatis mutandis*, to the forceps.

I have heard an obstetric teacher take every opportunity to discredit the forceps, and when the time came for him to show its application to his class, apply it improperly. Verily, from his standpoint, the man was right, for he never should apply it himself unless there was absolutely no other remedy.

I have recently read a paper in the "Transactions" of this Association, which has a direct bearing on this point. A physician reports results in five hundred and ninety cases of labor where the forceps was not once applied, and who regrets its non-use in but one case, where he thinks the child might have been saved. Now, there is much in that paper which I admire—the man's honesty, than which there is no greater virtue; his conscientiousness, a virtue equally as great; and his courage, too; and yet, I believe he does not know how to use the forceps, and that he has a subconscious sense of his incapacity. That out of these five hundred and ninety cases, all the women were safely delivered, simply proves that he practiced in a healthy locality, that his patients were good breeders, and that unaided nature can often work wonders. And I further contend that, had he had the most approved model of the forceps, and not left it at home, as he affirms, and had he

had a conscious skill in its use, he might have saved some of these women many hours of suffering, and not only without any injury to them, but with a distinct gain, and he might have saved the only still-born child to which he proudly points. His paper is surely a very significant one.

One of the glories of modern medicine is its power to relieve pain. Diseases which still defy a reduction in their death-rate may, at least, be made less painful and more bearable. Drugs which can not cure directly or shorten certain diseases can, at least, make the patient more comfortable. I contend that it is a legitimate function of the forceps to shorten a delivery and to relieve the patient of pain, and that it can be so used without injury to mother or child. That this use of the forceps outside the domain of absolute necessity, demands greater judgment and discrimination and, I may say, greater skill, I admit, for from its larger field of application it is made liable in unskilled hands to do injury, therefore, I say, the use of forceps depends as much upon the skill and discrimination of the operator as upon the absolute necessities of the case. Given a labor in any way prolonged, the more skilled you are in the use of the forceps, the better you know the patient, the more certain you are of the position of the child and the condition of the uterus and pelvis, the more justified you are in the use of instruments. And, on the contrary, if you are not skilled in its use, if its application simply means to you to stick it in, to lock it and to pull, you had better sit down by your patient and wait until you are assured there is no other remedy. The proper use of the forceps does not seem to me to be a difficult thing to learn, if one has any mechanical turn at all or manual dexterity, and yet I have seen it very bunglingly applied, just as I have seen such a simple thing as a hypodermatic injection badly done. Those practitioners who are content to calmly wait and wait, hour after hour, beyond the usual limit of labor, are usually lacking in diagnostic acumen and decision and have a conscious or subconscious sense of lack

of skill in all instrumental work. They wait till uterine inertia sets in, which they try to combat by old women's remedies, and worse still, ergot; they are always loud in their denunciation of the forceps and only see the ill effects of instruments misapplied or contraindicated.

I have heard a physician and an obstetric teacher boast of how he had advised in a certain difficult case against the use of the forceps where other physicians in the case had wanted to use it, but that he had stood firm, assuring them that though the woman was suffering and had already been much longer in labor than the average, and that though she would probably then have several hours of suffering, he was convinced that she was equal to the occasion and would eventually be safely delivered. Looking around with a proud smile, he continued: "In eight hours the baby came, and mother and child did well. And, gentlemen, there was no ruptured perineum to sew up, and no lacerated cervix with its subinvolution or endometritis, and all its train of ills to keep our patient a wretched invalid."

Before a class of young students this will bring an applause, but before a body of intelligent practitioners it must create a smile. The fallacy of it all is that he takes it for granted that the cervix and perineum will be ruptured. In other words he assumes that the forceps will be improperly used. So far as the perineum goes, the forceps has nothing to do with it, for they should be removed before the head is born, and as to the cervix, will any intelligent or experienced physician deny that in any ordinary case of delayed labor, the forceps can be used without injury to mother or child?

I have given this case because it typifies a class of practitioners who cry out, not only against the forceps, but against every other instrument or instrumental method, and who base their opposition upon the misuse or abuse of an instrument. It simply resolves itself into this: could they themselves use the instrument skillfully, they would see the case in a different light.

I must admit to a fairly free use of the forceps, and its blessings seem to me greater every day. I have used it when I considered it absolutely necessary, and with equal satisfaction when I felt that I had saved the woman an hour or more of severe pain, and not only have I failed to see where it has injured either mother or child, but have been convinced it was a blessing to both.

As I have indicated there are forceps cases and forceps cases. Not only cases which demand great skill and a large expenditure of force, but cases where the operation becomes one of thesim plest imaginable—cases requiring but little force and but a few minutes to accomplish. It is not much more than giving an enema. To one in full obstetric practice how common it is to get cases when the head comes safely through to the pelvic floor and there rests, the uterus apparently satisfied to have brought the labor to that point with no concern for completing it. The pains are short and inefficient, and really distress the patient as much as more efficient ones, while the pressure of the head is very distressing, and the patient becomes irritable and worn-out. Forceps here applied require but the gentlest force to bring the head to the vulvar outlet, and, unless the operator is a miserable bungler, it is impossible to do harm in any way. This little operation saves perhaps one, two or three hours, and what a satisfaction to all concerned!

Here is a case in point this very day of writing. A woman, healthy and strong, mother of three children, all of whom I delivered easily without any interference, is in her fourth labor. Even in the first confinement the second stage was not over an hour, while the second and third child were delivered even more easily. In this labor, pains started at 2.30 A. M., and when seen by me at 10 A. M., I found the child L. O. I., Ant., the cervix fully dilated, and the head well engaged and resting on the pelvic floor. Eleven o'clock passed and twelve o'clock with little or no progress; one o'clock passed and still no progress, and the pains worrying and ineffective;

half-past one came and no progress, and the woman tired and irritable. She had been three and a half hours in the second stage. I now give a little chloroform, apply the forceps without changing her position in bed, and with the slightest force bring the head down until it bulges the perineum, remove the blades and easily deliver the head. The child had a large head and weighed eleven pounds, which explained the delay.

I was convinced in this case that I did mother and child not the slightest injury, and I probably saved her one or more hours of suffering. It is hardly a forceps case. And how many such cases come to the obstetrician and how easily they are relieved! And how many hours of suffering in the aggregate have been saved! Surely such interference is hardly more than relieving an overloaded rectum.

I am fully aware of the dangers of meddlesome midwifery, and especially meddlesome midwifery in ignorant hands, for there is a distinction, but I believe that the ill effects of obstetrical nihilism are equally as great. We, in the South, where there is a large colored element, have abundant opportunity of seeing the results of a *laissez faire* policy as practiced by the ignorant colored midwives, upon whose mercy the large majority of the colored throw themselves. My note-book is full of such cases where I have been called in after many hours and even days have gone by, death resulting to both mother and child. A case like the following seems hardly credible in this nineteenth century:

A negress, *æt.* 16, had been in hard labor three days. The decomposed head of a large child protruded through the vulva; the mother was dying. On traction, the head came off from the body; both arms came away in removing the trunk, with the abdomen greatly distended from decomposition. The woman died a few hours later. This, of course, is an exceptional case, but it shows to what extent this apathy may be carried, and it teaches its lesson.

Here is another case: Called to a woman after five days of hard labor, with, of course, complete uterine inertia. It took me just one half hour to lock my forceps. I delivered a large, dead child with the largest caput succedaneum I have ever seen. The mother recovered. Where but among the colored, except, perhaps, in the wilderness, could one find these results of delay and neglect?

My note-book is full of cases where I have come in at the death; cases of eclampsia—a disease to which the colored are susceptible—placenta prævia, occipito-posterior position, neglected shoulder-presentation, and uterine fibroids obstructing labor.

I can hardly imagine the possibility of vesico-vaginal fistula from the use of the forceps. The cases which come to us now are neglected cases from the country; the more general and intelligent use of the forceps is making this condition rarer and rarer.

The cervical tear so much dwelt upon, and rightly, too, in many cases depends upon when and how the forceps is used. There are cases where delivery must be rapid to save either mother or child or both, and where the cervical tear is almost nothing in comparison with the other alternative. When one can wait till the cervix is perfectly dilated, the forceps, skillfully used, tear nothing.

I am glad to quote Mundé in this connection, who writes: "The forceps is an eminently conservative instrument, and can never do harm when applied and used under proper conditions and with a correct understanding of the anatomy of the genital canal and the mechanism of parturition."

This is undoubtedly the opinion of our prominent obstetricians, if we may judge from their writings.

As I have more than once asserted in this paper, the evil results of an instrument improperly used is no argument against that instrument; it should be, on the contrary, an incentive to its skillful use. Physicians who have to do obstetrical work should strive to attain to that diagnostic and manipulative skill which sanctions the use

of instruments. The fear of the forceps must go; only those on the outskirts are afraid of it.

The physician who knows his work, who can make his diagnosis, who understands the cervix in labor, and the limits of the uterine *vis a tergo*, and who appreciates the satisfaction of relieving useless hours of suffering, fears nothing from an instrument which has stood the test of two hundred and fifty years.

SOME INJURIES OF THE EYEBALL.

BY S. LATIMER PHILLIPS, M. D., SAVANNAH.

Among the emergency cases met with in daily practice, injuries of the eyeball play a more or less important part. We have them from a mere scratch of the cornea or conjunctiva to complete evisceration of the contents of the eyeball. Without further preamble I shall report a few cases that have come under my observation:

CASE I.—*Blow on Eye; Rupture of Choroid and Hemorrhage into Vitreous; Partial Recovery of Sight.*—Maggie T., *æt.* 10, came to consult me with the history of having been struck in left eye, one week before, while chopping wood, a piece of the axe-helve splitting away and striking eye. Lids were still swollen and eye painful. On inspection of the eye, found, to nasal side, the conjunctiva torn up from the sclerotic, where the foreign body struck the eye, but no foreign matter was visible, and there was no apparent puncture of the sclera. Iris was torn away from its periphery at upper center, perhaps for a fourth of its extent; pupil dilated, but with opthalmoscope could get no reflex from fundus. There was no light appreciation, L+. I then had the eye bandaged and had patient put upon gr. $\frac{1}{8}$ muriate pilocarpine every night. Six days later on, eye painless, light perception, and I could get red reflex from fundus. Now, with the opthalmoscope I found large quantities of floating bodies in vitreous; so much so, that details of fundus could not be made out. Twenty-three days from time I first saw patient vision had been brought up to $\frac{10}{20}$ from nothing, the result of the clearing of the vitreous. Eye had now become quiet and tension normal. There had been no injury of the lens, but I found a large

rent in the choroid near the center. I saw the patient at intervals for several years, but vision remained the same. The vitreous cleared up, but the large spot of choroidal atrophy still remains.

In this case the foreign body struck the eye with a great deal of force, but in such a position that the sclerotic resisted, being tough and elastic. The more tender choroidal vessels gave way and there was a profuse hemorrhage into the vitreous chamber, thus producing overtension and pain. The pilocarpine acted well in this case, lowering tension and bringing about the absorption of the blood in the vitreous.

CASE II.—*Burn of Eye with Hot Iron; Non-penetration of Body; Infection and Ulceration; Recovery.*— Thos. F., *æt.* 55, blacksmith by trade. A few days before I saw him, had been struck in left eye by a piece of hot iron. When he came to me, eye was painful and lids swollen, conjunctiva chemotic and overhanging corneal border. In center of cornea was the point of injury. The foreign body had struck the eye sufficiently hard to penetrate, or almost penetrate, the cornea, and had then rebounded. There was no sign of its having passed through the lens or having lodged in the vitreous or the coats back of it. In the right eye there was a fully developed cataract, with only light perception; hence it was all the more urgent that sight, if possible, be preserved in left eye. Eye was thoroughly washed out with a saturated solution of boracic acid, and atropia instilled; but notwithstanding this, the injured part of the cornea ulcerated, and in a few days hypopyon was observed. Three times was paracentesis of the anterior chamber done to evacuate the pus, and after six weeks the ulceration healed, leaving a small central scar. The sight was fair, enabling him to return to his work of making a living with comfort.

In this case there was evidently a previous conjunctival catarrh. The iron striking the cornea, rebounded, but

so bruised the corneal tisue that the germs of the catarrh found ready access to the wound, thus infecting it.

CASE III.—*Injury to the Cornea, Iris, and Lens from Explosion Breaking Glass Bottle, the Latter Cutting Eye; Traumatic Cataract.*—Walter M., *æt.* 8, was brought to me from the country by his father for an injury of the left eye, received four days previous. He had put some gunpowder in a bottle and dropped a lighted match in to see what the result would be. He found out very soon by a piece of the flying glass striking him in the eye. It hit the cornea to inner side of the center, making three diverging cuts—one toward center, one up, and one in. Iris cut clear to its base along horizontal median line, pupil semi-dilated and drawn toward the iris fissure; very little irritation about the eye now, no pain; tension normal, lens opaque, evidence of having been hemorrhage into anterior chamber from cut surface of iris, but now absorbed; has only light perception. Eye was treated with atropia locally and bandaged. When pupil dilated, found two adhesions of iris to lens capsule. At end of two weeks, all irritation having passed away, I made a small opening in the lens capsule hoping to hasten absorption, and not knowing when I should ever see the patient again, if at all. And, as I expected, I have never seen or heard from him since. My presumption was there was no foreign body in the eye, from the fact that the eye soon lost all signs of irritation and there was no pain or discomfort on pressure of the eyeball. If the one needling was not sufficient to produce absorption of the lens, if he comes back, another can be done easily with fair prospects of good sight.

CASE IV.—*Struck on Eye by Cork from Exploding Soda-water Bottle; Hemorrhage in Vitreous.*—J. H. M., *æt.* 20, of Jesup, Ga. While opening a soda-water bottle, two days since, there was an explosion, cork striking him with considerable force in left eye. Immediately he noticed he was blind in that eye. When I saw him I noted the fol-

lowing conditions: Bruised condition of lids and a painful eye, with tension above normal; only light appreciation, pupils semi-dilated; no hemorrhage in anterior chamber, but no reflex could be gotten of fundus from hemorrhage in vitreous; cornea hazy. Iris was torn toward nasal and toward temporal side, the split occuring near pupil and running toward ciliary border above. As he had to return at once to his home, I saw him no more. He had atropia locally and was to have taken gr. $\frac{1}{8}$ pilocarpine muriate that night.

In this case there was rupture of iris and probably choroid. After the absorption of the blood in the vitreous chamber, the eye possibly became good, much depending, though, upon the amount of injury to the choroid.

CASE V.—*A Unique Method of Injury Involving Cornea, Iris, and Lens.*—L. C., *æt.* 7 years, while playing in street two days before I saw him, was struck in the eye by one of his play-fellows with a most peculiar arm of warfare. It seemed that he had gone out with a cake or something in his hand which his playmates begged him for, but declining, they became incensed and began an attack upon him. One of them picked up a bird's head that he found on the ground and threw it at the child, striking him in the eye with the sharp beak, cutting cornea and iris, and penetrating lens. I found the cornea cut from the center vertically to near ciliary region. Through the wound in the cornea the iris was to some extent punctured, displacing the pupil. There was present a traumatic cataract, also redness and pain in eye. He could only notice shadow of hand when passed in front of eye. After the use of cocaine, whatever iris tissue protruding through corneal wound that could be caught up with iris forceps was cut off, atropia dropped in eye and bandage applied. Directions were given that cold applications be used on eye at intervals, and that one drop of atropia sulph. (gr. iv. to ℥i.) be used in eye every two hours until I saw patient again, which I did in about four hours. There had

been no special influence on the pupil by the atropia, but face was flushed and breathing rapid, with skin hot and dry to touch ; complains of no dryness of throat. No more atropia used that day, but the next sparingly. Under this treatment the eye soon recovered. The traumatic cataract can be removed at any time when he wants it done, with good chances of the restoration of vision.

THE ACTION AND ADMINISTRATION OF CHLOROFORM.

BY LUTHER B. GRANDY, M. D., ATLANTA.

I make no apology for presenting a paper with this title to the consideration of this Association. The anæsthetic, like the poor, is always with us. Other subjects, medical and surgical, may arise from time to time to receive the predominating attention and interest of the hour, but the ever-present and all-important matter of the anæsthetic runs its even and constant course, interrupted only now and then by the invention of a new and useless inhaler, or a so-called improved method of giving the anæsthetic.

A great deal of time and work and mental energy have been unnecessarily expended upon both sides of the imaginary case of *Chloroform vs. Ether;* and the merits and attractions of the one have been presented as fully and carefully as the disadvantages and dangers of the other. The discussion is quite superfluous except so far as it has served to point out the special conditions suitable and unsuitable for each anæsthetic. Chloroform and ether are in a large measure the complements of each other. They have been used side by side since anæsthesia was discovered; and they occupy about the same relative positions now that they did forty years ago. Each has its advantages and its proper field of usefulness, and we could ill afford to do without either.

While it is the object of this paper to present some thoughts upon the action and administration of chloroform, I wish to say right now that for the general purposes of an anæsthetic in the hands of all persons who may be called upon to administer it, ether is the pre-

ferable agent from the standpoint of safety alone. The matter of safety outweighs every other consideration. Ether is the anæsthetic of election. Chloroform is the anæsthetic of necessity, which should be employed only in the presence of a special indication and by some one trained to use it. The death-rate from chloroform (from recorded cases) may be put down as one in three thousand cases; from ether one in ten thousand. Under chloroform the margin between surgical narcosis and a toxic effect is narrow and often precarious; under ether it is broad and comparatively safe. In the South, the general use of chloroform for all purposes of anæsthesia is much too common, and I am sure that there have been many deaths from it that have never seen the light.

But chloroform can not and should not be dispensed with. Any one may be called upon at one time or another to administer it, and it is vitally important that it be administered properly.

First, as to the action of chloroform. In late years, thanks largely to the investigations of the Hyderabad commissions, and to counter-investigations conducted by other observers, we have been furnished with an abundance of literature and information upon the phenomena of chloroform anæsthesia, and while their results have not been altogether harmonious, they have helped to advance the truth, and their influence will be for good. The first chloroform commission appointed by the Nizam of Hyderabad in 1888, after two hundred experiments upon one hundred and forty dogs, announced the following results: (1) Respiration ceased from one half-minute to six minutes before the pulse; (2) the heart continued to beat from three to thirteen minutes after the pulse stopped; (3) artificial respiration restored the animal in every case when commenced within fifty-two seconds after normal respiration had ceased; (4) artificial respiration, commenced after the pulse could not be felt, was successful in twenty-nine cases and failed in seventeen cases; (5) artificial respiration was unsuccess-

ful in every case where it was commenced after the heart had ceased beating. The second commission (1890) verified the conclusion of the first and added: (1) That death from chloroform is never due to cardiac failure, and (2) that ether is quite as dangerous as chloroform if enough is used to produce true anæsthesia. The third commission (1893), consisting of Doctors Hare and Thornton, of Philadelphia, agreed in the main with the other two. But these gentlemen made the important concession that while respiratory failure, as a rule, precedes cardiac failure in a healthy animal, the reverse may be the case in a human subject whose cardiac strength and vitality is already lowered by disease. The remarkable statement that ether is as dangerous as chloroform is refuted by clinical experience and figures, the world over, ever since anæsthesia has been employed.

Now, it must be borne in mind that the above conclusions were based solely upon experiments on healthy dogs. How far we are justified in applying them to the human subject, and to what extent they will be found to conform to clinical experience, are open questions, and the most important to be determined after all. Indeed, the final settlement of this, as well as other questions upon which animal experimentation is brought to bear, must be made on the operating-table or at the bedside. A human being is neither a dog, a white rabbit, nor a guinea-pig, and no amount of laboratory deductions and ratiocinations can take the place of intelligent observations and conclusions based upon actual clinical experience with diseased man. I am afraid that we may be led into a fatal error if we allow ourselves to be guided too much by the Hyderabad conclusions in administering chloroform to man. The warning of Semmola, a few years ago, with reference to laboratory therapeutics in general is as applicable here as elsewhere: "Every so-called scientific construction of the evolution of this or that disease which is based on the investigations of the laboratory will remain a hypothetical structure built upon at least three fourths

of falsehood, and hence forms a dangerous guide for the physician who would regard it as the true key to treatment. We should lull ourselves with no illusions in this respect, and I hope that rising physicians will satisfy themselves on this score, that they may not later become murderers of their kind in the name of progress."

Clinical evidence is abundant and conclusive that people have died under chloroform from a sudden failure of the heart and circulation, whether this failure be due to direct effect on the heart-muscle or to reflex inhibitory influence through the pneumogastric. Our text-books on materia medica have taught for forty years that chloroform undoubtedly exerts a steady and powerful depressing effect on the heart, and that syncope in many cases is very probably the result of its direct influence upon the heart-muscle.* Dr. H. C. Wood says (Dennis's "System of Surgery"): "Whatever the results of experimentation with anæsthetics upon the lower animals may be, it seems to me absurd for any one to claim that in man chloroform does not frequently produce death by an action upon the heart. In numerous cases the heart's action has been well tested with full knowledge on the part of the observer that leaders in the profession have declared that chloroform never kills by its action upon the heart, and yet in nearly four cases out of five it has been noted that death came through the heart. If clinical observations upon the simplest questions be of any value whatever, the conclusion must be that, in the large majority of cases, chloroform death has been due to cardiac arrest." Dr. Wood thinks that physiologists have completely demonstrated that "chloroform is a direct depressant and paralyzant to the heart-muscle or its contained ganglia; and that the early fall of blood-pressure which occurs in chloroformization is in great part, if not altogether, due to this direct depression upon the heart." MacWilliam has shown (*British Medical Journal*, October 11, 1890) that dilatation and weakening

* "Therapeutics—Its Principles and Practice." H. C. Wood.

of the heart occur during chloroform anæsthesia, often early in the administration; that it often occurs rapidly, and that cardiac failure is due to this sudden dilatation and enfeeblement of the organ. He believes that while respiration usually ceases before heart-failure, the latter may, and does sometimes, take place a considerable time before the former. The depressing effect of a distended and enfeebled heart is due directly to the action of chloroform upon the heart-mechanism.

If now we appeal to clinical experience and examine the records for deaths under chloroform, we find that cases will usually read something like this:

1. Female, thirty-four years. Operation for fistula in ano. Three drachms chloroform given. As fistula was divided patient screamed, face became pale, pupils dilated, heart ceased to beat. Respiration ceased in few minutes. *Autopsy:* Heart collapsed, pale, covered with fat, its walls were thin and showed fatty degeneration.

Or like this:

2. Male, middle-aged. Amputation of crushed thumb. After a few inhalations, patient died. *Autopsy:* Heart fatty, valves diseased.

Or like this:

3. Male. Removal of diseased bone from leg. Heart and lungs examined and pronounced healthy. Only small quantity chloroform given. Patient died three minutes after beginning inhalation. *Autopsy:* Negative.

Or like this:

4. Male, fifty-one. Dressing fracture of the leg. Half-drachm chloroform given and in two minutes another half drachm. Patient became quiet, with regular pulse and respiration. After dressing was applied heart stopped, pupils dilated, respiration continuing; latter soon ceased. *Autopsy:* Atheroma of coronary arteries, heart slightly fatty, right side of heart filled with dark blood, ventricles thin.

Dr. H. M. Lyman, in his excellent work on "Anæsthesia and Anæsthetics," from which the above cases have been

taken, collected four hundred and ten cases of death from chloroform up to 1880. In many of them, where it is not expressly stated that the heart was the first to fail, the circumstances of the death make it reasonable to assume that this was the case; primary cardiac failure is the only rational interpretation that can be placed upon the fatal result. An examination of recorded cases of death from chloroform warrants the statement that more than one half occur before the period of full insensibility is reached, and in point of time within the first five or six minutes after inhalation is begun, and before a paralysis of the respiratory centers is to be expected. On autopsy, the hearts of persons so dying often show a weakening and thinning of the walls, a fatty deposit on the heart, or a true fatty degeneration of heart-tissues or valvular lesions, or some of these combined. Given such a diseased heart (and you can not tell always when a heart is diseased), acted upon by a powerful cardiac depressant and paralyzant in the hands, possibly, of one unskilled in its use, and a bad result is not to be wondered at.

Now, no one has ever denied, so far as I know, that primary respiratory failure may happen and does happen. I believe that either heart or respiration may fail first, or they may fail together, depending upon causes and conditions which we do not at present entirely understand. Out of three hundred and eighty-four deaths analyzed and tabulated some years ago by a commission acting for the London *Lancet*, in two hundred and twenty-seven the pulse is said to have ceased entirely before respiration; seventy-seven times they ceased simultaneously, and eighty times the respiration stopped before the heart.

However interesting it may be after a patient is dead for one to have noted all the peculiar circumstances attending his untimely taking-off, it is infinitely more important for the chloroformist to guard every avenue of disaster and watch for every signal of danger while he is living. I believe that carelessness in the administration of this anæsthetic, including the use of it by persons who

do not know how to give it, will explain many of the unfortunate results. It is far too common for the operating surgeon to delegate the least experienced of his assistants to give the anæsthetic, and this applies to ether as well as chloroform. Americans are more careful of the anæsthetic than Europeans, and our death-rate is correspondingly low. In Great Britain alone, between 1880 and 1889, inclusive, there were one hundred and thirty deaths from chloroform. Last year sixty-one deaths from anæsthetics occurred in England and the Provinces. Fifty-two of these were due to chloroform. An American surgeon, lately returned from abroad, says: "I can scarcely wonder at the frequent deaths from chloroform which one sees so constantly reported in the medical journals abroad. In six weeks I saw six patients within an ace of dying. The old rule that chloroform should always be given with plenty of air, seemed to be almost ignored. The chloroform was poured in considerable quantities on a towel or napkin, which was pressed close down on the patient's face, so that he breathed almost absolutely pure vapor of chloroform. In each of the six instances I speak of, the surgeon had to discontinue his operation, and the patients were restored with difficulty by artificial respiration and rhythmic traction of the tongue."

How, then, should chloroform be administered? I wish to say at once that if pure chloroform be used by a person who understands it, and the patient be reasonably healthy, at least so far as his lungs and heart are concerned, the danger is reduced to a minimum, and the patient is correspondingly safe. The dangerous impurities of chloroform consist of certain hydrocarbons, aldehyde, free chlorine, and certain methyl compounds, and decomposition products from exposure to light and air, such as acetic and formic acids. If in doubt about the quality of the drug, pour a few drops upon a piece of clean, white paper. After evaporation, if the chloroform is pure, there will remain no odor and no stain. Chloro-

form should be kept in a dark place, in ground-glass stopped bottles. Five drops of alcohol to the ounce of chloroform will help to preserve it, without interfering with its virtues as an anæsthetic.

The patient's health, and the integrity of his heart and lungs especially, should be in such condition, as far as can be ascertained, as to render the inhalation of chloroform reasonably safe. The chief danger, on the side of the heart, is from fatty degeneration and the consequent weakening of the heart-muscle. Endocarditis—even with a moderate valvular lesion—need not debar the use of chloroform (ether being contraindicated), provided the force and strength of the heart-muscle are still maintained. The patient's chest should be examined in a quiet manner and his attention diverted, if possible, from the purpose of the examination. The chloroform should be given, a few drops at a time, on an Esmarch mask. With children, a handkerchief may be used with safety. The patient should be told to breathe naturally. The anæsthetic should be "pushed" with extreme caution, especially at first. If the patient be violent and inclined to scream and struggle, special care should be taken to prevent a sudden inhalation of strong chloroform vapor, or ether should be substituted for the chloroform.

Rules have been drawn up with much care about watching the respiration, feeling the pulse and noting from time to time the condition of the pupil, as the patient goes into and remains in the state of anæsthesia. Each of these indexes have been advocated by different observers as furnishing a sufficient guide to the patient's actual condition, and the president of the first Hyderabad commission summed up the duties of the anæsthetizer in these words: "Use pure chloroform, watch the respiration and keep it regular." Others tell us to judge of the patient's condition from the pulse or the pupil. Such I believe to be bad advice. Chloroform or ether can not be properly administered by rule. Be governed by the patient, and not by a rule. Neither of the above indexes

should be depended upon to the exclusion of others, and the man who loses a patient from a failure to take advantage of every available means of information as to his patient's condition would certainly be held culpable. The anæsthetizer, either with chloroform or ether, should watch respiration, pulse, pupil, and color of the face. With an intelligent observation of these four things, and a ready appreciation of unfavorable symptoms, on the part of an anæsthetizer who confines his attention to his own work and lets the operation alone, there should be fewer accidents, and rarely a death from any anæsthetic. About three months ago I gave chloroform to a young man from whom a cystic testicle was to be removed by Drs. Nicolson and Westmoreland. The anæsthetic was poured on an Esmarch mask, a few drops at a time, and for several minutes the patient took it fairly well. After about fifteen minutes the face turned pale, the pulse was feeble and frequent, the respiration shallow, and the pupils became suddenly and widely dilated. His condition was the most alarming that I ever witnessed, and nothing but the instant recognition of the danger and the immediate resort to strychnine and artificial respiration, etc., saved the patient's life.

The pupil, I believe, is the most reliable single indication, and, as a rule, neither the heart nor the respiration will be materially affected before a distinct and appreciable impression is made upon the pupil. The pupil is controlled by the third-nerve center in the aqueduct of Sylvius. As the patient goes under the anæsthetic certain changes may always be noted in the pupil. At first it dilates slightly from the sensory impression on the cerebrum, just as momentary dilatation may be produced by the inhalation of any pungent vapor or by emotion. In the second, or surgical stage, when the cerebrum is paralyzed and no longer appreciates sensory impressions, the pupil is contracted, because the third-nerve center is still active. If now the anæsthetic is pushed still further and this center is paralyzed, dilatation of the pupil results. By

the time this occurs an embarrassment of the respiration may be noted, and a weakened heart-action and a pallor or cyanosis of the face. Then comes the tug of war. But the patient should not be allowed to reach this point if strict attention to business and a careful watch for danger-signals can prevent it. A pupil contracted and responsive to light is the limit beyond which it is not only not necessary, but extremely dangerous, to go. It is needless to add that digitalis and strychnine should always be on hand, and at hand in case of accident.

I have several times noted among physicians an unwillingness very much akin to fear to administer chloroform. I have seen some decline to give it, and I have seen others give it who certainly did not understand it, and there are others who will indulge in the wildest talk about the awful dangers of chloroform, and express themselves as opposed to its use in almost any circumstances. Such fears and ideas are unreasonable, and if doctors generally were better acquainted with the details of chloroform administration, as they should be, there would be less of such prejudice.

One word, in closing, about the A .C. E. mixture, and that a word of warning. Whatever theoretical considerations are responsible for its existence and use break down under the brute force of practical results. The death-rate from this mixture is about the same as that from chloroform. The mixture is usually administered in a towel and paper cone, after the manner of ether, and after a few minutes' inhalation the ether is evaporated and the patient is breathing a strong vapor of chloroform in a closed space with an insufficient supply of air. The composition of this mixture lulls the anæsthetizer into the false belief that the patient is breathing a vapor with a constant proportion of one part alcohol, two of chloroform, and three of ether. This ratio does not exist in the vapor of this mixture. Similarly with any mixture of chloroform or ether. These drugs when put together do not produce a new chemical compound, as is sometimes claimed

by advocates of the A. C. E. mixture, but they remain a simple mixture, and each part evaporates in its own time. If this mixture is to be used at all, it should be administered with all the care of chloroform, because the ether in it is rapidly dissipated, and in the end we practically get a chloroform anæsthesia.

I have endeavored in this paper to show that for the general purposes of anæsthesia, ether should be employed in preference to chloroform; that chloroform, however, is indispensable in its place; that it is the duty of every physician to know how to administer it properly, and that if given carefully by a person duly watchful of his patient's condition, the danger from it is reduced to a minimum; that the A. C. E. mixture has no advantage over chloroform or ether, but is more dangerous than either, and that if used at all, it should be administered as chloroform.

SOME ALBUMINURIC COMPLICATIONS OF PREGNANCY, LABOR AND THE PUERPERAL PERIOD.

HOWARD J. WILLIAMS, A.M., M.D., MACON.

Albuminuria is a symptom and not a disease. When we speak of the albuminuria of pregnancy we use a popular misnomer, giving prominence to a manifestation of a disease instead of the disease itself. Like eclampsia, it is a symptom or sign of toxæmia present in the blood during gestation, parturition and sometimes in the puerperal period. Puerperal toxæmia is then the disease, and its manifestations are numerous, the most common of which are albumin in the urine and convulsions before, during, or after labor. There are other symptoms and signs of the conditions besides these, equally as distinct and fully as dangerous, though not so commonly encountered.

Albuminuria, or better, toxæmia, is one of the most frequent complications of pregnancy. It is present in from six per cent. to fifty per cent. of all pregnancies; puerperal eclampsia, on the other hand, is comparatively rare. Lusk says, in one out of every five hundred pregnancies. This, however, is too low. Lohlein places it at one in every one hundred and sixty-one cases in general practice. From January 1, 1891, to March 31, 1896, during which time I have preserved accurate statistics of my obstetrical practice, I have encountered ten cases of toxæmia in one hundred and sixty-three pregnancies and two cases of eclampsia in these ten cases; this gives six per cent. of toxæmia and about one per cent. for eclampsia. Fifty per cent. of toxæmia is too high, and as it is based on Palmer's report of cases in the Cincinnati Hospital, this

can not be taken as the proportion of all cases, for it must be remembered that the inmates of maternities usually come from that class whose environments predispose to all forms of toxæmia. The per cent. I have here given is based upon accurate analyses of the urine of every woman I have attended during the time mentioned.

Puerperal toxæmia is simply poisoning by the products of waste circulation in excess in the blood of pregnant woman, and is dependent upon the insufficient action of the organs of excretion, mainly the kidneys being at fault. That these waste materials should accumulate in the blood of a pregnant woman is not surprising, if we remember the dual life existing in her body, the placenta being lungs, liver and kidneys for the child. The presence of these waste products in excess in the blood can be easily demonstrated, if we examine carefully the urine; besides albumin we will often find tube casts, glucose, lactose and acetone present, while the excretion of the urea is diminished. In fact, these other waste elements may exist in the urine without the presence of albumin, and it is not unfrequently the case that the urea is diminished without albumin or casts being present. The diminution of urea in the urine, and its consequent retention in the blood, gave rise at one time to the opinion, that this excretion, or its derivatives, was the sole toxic agent, but it is now known that other retained excretions play an important part in the condition.

Albuminuria, the symptom, may be present in varying degrees from a mere trace up to a very large per cent., the urea and other excreta accumulating in the blood not in the same proportion. The toxæmia will be slow or rapid according to the degree of retention of the latter from the outset. These variations will be shown by the first three cases I shall report.

CASE I.—Mrs. R. P., aged 20 years, white, multipara. Convulsions in her first labor: expected her second confinement in the latter part of December, 1894.

During the eighth month, she began having headaches,

vertigo, nausea, slight œdema of the legs, and irregular pulse; the symptoms gradually growing worse. The urine was normal in quantity, specific gravity 1020, slight trace of albumin, urea slightly diminished, no tube casts. Under a mild diet, warm baths, and a daily saline purge, the albumin disappeared with relief to her other symptoms, and she was delivered without complications of a healthy, living child, December 15, 1894.

In this case the albumin was only to be seen by the most careful scrutiny of the tests employed, while the urea was gradually diminishing and the toxæmia advanced in proportion to the retention of this waste material.

In the next case the progress was rapid.

CASE II.—Mrs. D. Q. A., aged 43; mother of three children, two dead and one living; one miscarriage. History of convulsions in two previous labors. Date of expected confinement October 1st, 1893.

Weekly examinations of the urine were made in this case, from the third month up to eight and a half months, without finding any albumin or any other urinary disorder. On examining the urine on the 18th of September, I was surprised to find it loaded with albumin, and urea greatly diminished. Visiting the patient immediately after this examination, I was informed that for several days she had been having cramps in the abdomen and lower extremities, slight headaches, nausea, periods of momentary blindness, while the urine was greatly diminished. Ordered cathartic doses of calomel and soda, followed by saline laxatives, warm baths, hot drinks, and skimmed milk diet. From the 18th day of September to the 23d, she took teaspoonful doses of sulphate of magnesia every three hours. The headaches, cramps and nausea were relieved. Examining the urine, I found no albumin, specific gravity 1020, daily quantity four pints. September 24th she was delivered of a living, healthy child, the labor uncomplicated. The kidneys, after recovery, were restored to their normal functions.

Of the third case I know nothing prior to a few days preceding her confinement, but judging by the history given me, the albuminuria had been of short and rapid progress, while the examination made for urea in this case showed it moderately reduced in quantity.

CASE III.—Mrs. B. E. P., aged 23 years, white, primipara. Expected confinement about October 18, 1895.

October 11, I first saw her; had been complaining for a few days of vertigo, fullness in the head, nausea, constipated bowels; slight œdema of limbs; pulse hard, tense, and frequent; urine reduced to about twelve ounces per day, specific gravity 1022, albumin present in about 60 per cent., no microscopical examination made, urea decreased.

She was immediately given 10 grains of calomel, 10 grains of soda, and 5 drops of croton oil. This dose was to be followed by ʒii. of sulphate of magnesia and ʒi. bitartrate of potassium every four hours, to keep up a continuous watery catharsis; absolute rest in bed, hot baths, and a skimmed milk diet ordered.

In forty-eight hours the daily quantity of urine increased to a pint and a half, and the albumin slightly diminished. In four days the albumin fell to about 25 per cent., and in ten days to 10 per cent., with a continual increase of the daily quantity of urine. This treatment was continued until the 25th day of October, when she went into labor. Unfortunately I was unable to attend her, but informed Dr. Winchester, who was in attendance, of her condition. I learned that she had a safe but slow labor, the child living. In the early stages she had frequent twitchings of the face and arms, and the labor was completed after sixteen hours, under chloroform towards the last. Except for a continued hypercatharsis, her puerperium was uncomplicated and her kidneys soon recovered their normal action.

Herman, of London, describes two forms of toxæmia of pregnancy—acute and chronic—and these cases I think illustrate his description.

In the form called "chronic" the progress is gradual and it attacks by preference multipara, the premonitory symptoms lasting for weeks; the urine is normal or increased in quantity; the albumin may be in excess, but not out of proportion to the urine, while the urea is diminished to some extent; usually the fœtus dies; delivery is followed by temporary increase of urine and urea. If the urea is not increased the affection may pass into chronic Bright's disease.

My first case resembles this form. The other form is very acute, premonitory symptoms either being absent or of very short duration; it attacks most usually primigravida; the urine is diminished, deficient in urea, contains large amounts of albumin; convulsions are apt to occur rapidly; it often causes the death of the child. If the urine and urea increase rapidly after delivery, these cases are favorable; but if the urea is not restored to the urine, they are quickly fatal. My two last cases correspond to this form of the disease.

The fourth case I present is one of genuine acute nephritis occurring in the latter months of gestation. It is the only case I shall present having eclampsia in acute toxæmia; one other had convulsions, but she had chronic nephritis preceding her pregnancy.

CASE IV.—Mrs. R. S., aged 27 years, white, multipara. Previous pregnancies and labors uncomplicated. Date of expected confinement, December 25, 1892.

November 25, I was called in; found her near the end of the eighth month of gestation, suffering with defective vision, headaches, dyspnœa, nausea, and some œdema of the face, lower extremities, and prolabia. She ascribed her condition to a severe cold contracted three weeks previously. Examination of the urine disclosed a specific gravity 1023; albumin abundant; hyaline and granular casts and blood corpuscles under microscope; urea diminished; only fifteen ounces of urine during twenty-four hours, which was of a dark, smoky appearance.

The symptoms in her case were so marked that I seriously considered the propriety of artificial induction of labor, but decided to first try the following plan of treatment: A free mercurial purge was given, to be followed by ʒi. of sulphate of magnesia and ʒi. of bitartrate of potassium twice daily, diuretic doses of infusion of digitalis every four hours, and a milk diet.

By December 10, she was so much relieved that I discontinued visiting her, having gained a promise that she would persist in the treatment until she was confined.

December 25, I was again sent for and found her condition as bad as ever; she had failed to carry out the treatment. The urine contained albumin and casts, was deficient in urea and diminished in quantity.

The mercurial purge was repeated, and frequently repeated salines ordered. I did not care to risk pushing the kidneys at this stage of her pregnancy, therefore I did not repeat the diuretics.

December 28, 1892, she was delivered of a healthy living child, after a tedious labor complicated with severe vomiting, general muscular twitching, slight mental hallucinations and feeble pains. Her nervous condition was such that I had to give her chloral and bromide and complete the confinement under chloroform. Immediately after she was delivered she complained of intense headaches; her respirations were irregular and pulse 120 for an hour. Atropia and morphia relieved her head and the irregular breathing. Within two hours after her labor was completed she had a severe convulsion. I bled her at once and as soon as she could swallow gave her calomel and croton oil, bromide of soda gr. 30 and chloral gr. 15, to be given every two hours if awake. Notwithstanding this treatment, she had convulsions at regular four-hour intervals for the next thirty-six hours. At that time I put her head in an ice-pack and kept her continuously unconscious by morphia hypodermically for twenty-four hours. She then aroused, had no more convulsions, and made a

good recovery. Ten days later her urine was absolutely normal.

This case, I believe, was one of acute parenchymatous nephritis; and had she died, the structural lesion of this disease would have been found. In the acute toxæmias of pregnancy structural lesion of the kidneys are rarely found, and in the three cases preceding this one, I am satisfied they did not exist. In this case, however, we have a woman whose previous pregnancies were uncomplicated; she is exposed to cold and then symptoms of kidney trouble follow; the urine is diminished, is smoky, contains blood-corpuscles and hyaline and granular casts, while the albumin is true serum-albumin, the form characteristic of genuine renal diseases. The albumin of puerperal toxæmia is paraglobulin and does not respond to the tests for serum-albumin, although it reacts to the ordinary tests of heat and nitric acid.

The fifth case I present is interesting from the fact, that while the toxemia was acute according to Herman's term, the labor was not attended by eclampsia, but was followed by a persistent coma, and further, there was a recurrence of the albuminuria of a milder type in a succeeding pregnancy.

CASE V.—Mrs. J. L. B., age 21 years, white, primipara. Expected confinement July 15, 1892.

Persistent vomiting from an early date after conception; continued up to the seventh month. Frequent examination of her urine showed nothing abnormal up to May 22, when I left home for a two weeks vacation. Returning June 6, I was surprised to find her suffering with intense headache, excessive vomiting, constipated bowels; extreme œdema of the face, legs, and external genitals; and frequent desire to urinate, but passing only half a pint of urine daily. The urine was loaded with albumin deficient in urea, had a few hyaline casts and a specific gravity of 1030.

During my absence two physicians had been called in to see her, but had made no examination of the urine.

I ordered a cathartic dose of calomel and soda, followed by saline laxatives; acetate of potassium and infusion of digitalis; a milk diet, vapor baths, and a digitalis poultice to the loins. This treatment was followed by a temporary increase in quantity of urine, a lessened specific gravity—1024, diminution of albumin, and some improvement of her other symptoms.

On June 13 there was a rapid return of all her symptoms. Dr. C. H. Hall was called in consultation, and various treatments used without benefit. June 19 it was decided to induce premature labor. Eight hours after introducing an elastic bougie into the uterus, premonitory pains came on, and twelve hours later labor was completed under chloroform. The child was born asphyxiated, gasping feebly once or twice.

The mother did well for an hour, slept quietly, but the pulse remained accelerated—120 beats. At the end of the hour, without any hemorrhage or other apparent reason except exhaustion, she rapidly sank into a collapsed state, comatose, pulse almost imperceptible, respirations shallow and sighing, skin cold, blue and covered with perspiration. Vigorous use of whisky, nitro-glycerine, digitalis and strychnine would revive her, but as soon as their use was relaxed she would relapse. This lasted for twelve hours; she then gradually revived, would answer if aroused; the pulse and respiration improved. She began vomiting large quantities of a dark-brown offensive liquid, without having taken anything into the stomach since labor was induced. It was necessary to continue the whisky, strychnine, and digitalis for another twelve hours, for she would weaken without their use. After the first twenty-four hours, beginning with a little crushed ice, champagne, egg-albumin, and animal broths, the stomach retained nourishment. This condition lasted, in all, forty-eight hours. She then gradually revived, and, after six weeks of illness, finally recovered. The urine, however, contained albumin and diminished urea for quite two months after labor.

Two years later she again became pregnant, and when six months advanced, albuminuria, headaches, nausea, and œdema commenced. Saline laxative treatment, with tonics and a regulated diet, commenced at once and continued for several months. This treatment controlled the disease. On July 4, 1895, she had an uncomplicated labor and made a rapid recovery. The child, however, weighed only four pounds and required careful attention for several weeks to keep it alive.

Acute Bright's disease and acute toxæmia of pregnancy are usually attended by convulsions. If coma is ever present it follows convulsions. In the above case I think I have an unusual history. In the literature I have been able to review, I have not met with any report of coma without convulsions attending acute puerperal albuminuria. Lusk, Playfair, E. P. Davis, and others do not mention it as a possible complication. Herman, however, reports two cases of unconsciousness with other nervous symptoms occurring early in the toxæmia, but it passed away without interrupting the pregnancy. In the present case, after induced labor, the coma came on when we would naturally look for convulsions.

This is one of those cases in which the disorder is apt to pass into chronic Bright's disease, according to Herman; yet, after two months of albumin in the urine, with diminished urea following labor, the woman escaped the disease. That she entered her second pregnancy without kidney lesions, I am sure, for I made repeated examinations of her urine during the two years intervening between the pregnancies, and found it always normal.

The next three cases are histories of chronic Bright's disease complicating pregnancy; two were multipara, with histories of preceding miscarriages; the third a primipara, married late in life. They are fatal cases.

CASE VI.—Mrs. S. H., age 37 years, white. History of chronic Bright's disease; three living children, one miscarriage. Six and a half months advanced in pregnancy.

The urine was brought to me by Dr. Herman, of Eastman, Ga., on February 9, 1894. Specific gravity 1020. Albumin abundant. Hyaline tube casts in small numbers. Quantity of urine, three pints in twenty-four hours. Urine has not been free from albumin for several years. Severe pain in back, headache, palpitation, vertigo, nausea, and swelling of labia, but no œdema of the extremities. Had a premature labor eighteen months previous to the present time, dependent on albuminuria.

Advised milk diet, laxatives, diuretic doses of infusion of digitalis, warm baths, and hot drinks. Also advised, if no improvement, to induce premature delivery, but if possible to carry her up to the eighth month of pregnancy.

On February 10, I received a telegram to come to Eastman at once, prepared to induce labor. Arrived in Eastman at four o'clock P. M. Found the patient extremely prostrated; nervous jerking and twitching of extremities, eyebrows and lips; severe headache and darting pains in the spine, slight œdema of extremities and labia majora, nausea, vomiting, convulsions threatened. Prepared to induce labor by introduction of bougies. One not being sufficient to bring on contractions, after four hours introduced another, then after another six hours introduced a third. Contractions did not come on until four o'clock the next afternoon, and were very weak and feeble. Six o'clock the second morning (February 12) the os uteri dilated to the size of a dollar. Hemorrhage came in profuse quantities. Examination revealed placenta previa. Tampon until twelve o'clock arresting hemorrhage. Considerable oozing through tampon, but not alarming. At twelve o'clock, the patient being chloroformed by Dr. Clark, and assisted by Dr. Herman, I delivered her by podalic version of a six and a half months' dead fœtus. Reaction took place promptly, and for two hours the patient apparently did well. But at the end of that time the pulse became very weak, the patient's mind confused and she had nervous twitching

Hypodermics of nitrate of strychnia, digitalis and whisky were used without any reaction whatever. Delirium set in, followed by coma, then convulsions finally. Death at 6 P. M.; the patient had three convulsions before dying. Puerperal convulsions is a rare complication in women suffering with chronic nephritis; according to Lusk, Playfair, Barker, Herman, and Sir John Williams, an exceedingly rare condition, the disease predisposing them to the other complications of toxæmia; abortion and uræmic coma being the most frequent results of the pregnancy. The above case was one of this rare class, the patient having a history of chronic Bright's disease of several years standing, a previous miscarriage dependent upon albuminuria, uræmic toxæmia in the last pregnancy, requiring artificial abortion, and convulsions, ending in death after the third fit. I can not conceive of a more hazardous series of complications, nor a more fatal combination of dangers than was present in her case.

The next case is one of coma of chronic Bright's disease following miscarriage.

CASE VII.—Mrs. G. H. T., aged 35 years, white, suffering with chronic aortic valvular disease and chronic Bright's disease. Had a history of two miscarriages with convulsions at the seventh month, one a twin pregnancy; all the children dead at birth. Date of expected confinement, April 15, 1894.

At my first visit, January 1, 1894, she had swollen feet, headaches, difficult breathing, lips blue and a high degree of anæmia; urine increased in quantity to six pints daily, specific gravity 1010, trace of albumin and hyaline casts present.

Tonics and a pill of digitalis, calomel and squills given, and a thoroughly nutritious diet prescribed.

The quantity of urine was reduced to three pints a day, but albumin and casts persisted. Her general condition improved and she could breathe with comfort, under the above treatment.

February 26, she miscarried at six and a half months. The child was small, respiration and circulation imperfect; it died six hours after birth. The labor was rapid and uncomplicated. Three hours after confinement the urine rapidly increased in quantity—about six pints in six hours—the specific gravity 1004, albumin and casts present. The pulse was intermittent and the respiration irregular.

When the child died she became violently excited, and it was thought that she would die. Her breathing and pulse became so bad, and her face so blue, that she had to be propped up in bed and the windows opened. Hypodermics of strychnia and digitalin were administered, and when these controlled her breathing, morphine hypodermically had to be used to control the nervousness.

She did well for three days, but then became restless and could not sleep. Morphia caused wakefulness and sulphonal induced sleep. There was no fever or local symptoms due to her puerperal state. The quantity of urine now rapidly decreased and diuretics had no effect. From wakefulness on the third and fourth days, she became extremely drowsy. The skin was dry, tongue dry, pulse irregular and intermittent, respiration stertorous. The drowsiness deepened into stupor, then into coma.

Dr. Etheridge and Dr. McHatton were called into consultation, but our united efforts were of no avail.

On the 7th of March, at 6 A. M., a hypodermic of muriate of pilocarpine was given, which revived her for a few moments, but she sank back into coma.

She died at 3 P. M., March 7, seven hours after the first dose of pilocarpine, and nine days after her miscarriage.

Examination of the albumin in her case showed it to be the serum-albumin of true kidney lesions. Without fully knowing the previous history of this case, I believe that she had no structural lesion of her kidneys prior to the first miscarriage, nor, possibly, prior to the second, for both were attended by convulsions, which we have just seen is a very rare complication. If this is true, the

chronic nephritis in the last pregnancy was the result of the repeated puerperal toxæmia. This woman had, however, an organic heart-disease, which raises the arterial tension, predisposing to renal insufficiency and consequent structural changes late in life. In uncomplicated puerperal toxæmia, restoration of functions after labor is usually easily established; not so, however, when complicated with organic heart-disease; the delayed return of urea to the urine will give rise to the chronic nephritis. In this last confinement, the kidneys had reached the point where they could not be relieved, hence the fatal coma of a now chronic Bright's kidney.

The next case shows how an acute toxæmia of pregnancy will aggravate an existing chronic Bright's disease in a primipara.

CASE VIII.—Mrs. J. D. H., age 36 years, white, primipara. Six and a half months advanced; suffering with chronic Bright's disease.

I was called to see her, at her home, eight miles in the country, for the first time August 17, 1895. The messenger stated that she was suffering severe pain and was flooding profusely. When I arrived I found the bed saturated with blood and the floor under it stained. She had also pains resembling the first stage of labor, and intense pain in the left hypochondriac and upper lumbar regions, continuous in character. The os uteri was open to about the size of a dime. Temperature 98, pulse 120, weak and gaseous. Her face, hands and feet were œdematous, skin slightly jaundiced and waxy in color; had been so for weeks. I also learned that she had suffered for some time with pain in the back of her head and neck, and with difficulty in breathing; the urine, too, had been deficient in quantity.

I gave her at once a hypodermic of sulphate of morphia gr. $\frac{1}{4}$, and atropia gr. $\frac{1}{120}$; and after antiseptic douching of the vagina, I tamponed her. This relieved the present needs of the case; she had lost too much blood to attempt to bring on labor, which I saw would be inevitably neces-

sary later on. Her urine was drawn and tested by boiling, at the bedside; albumin found abundantly present. A portion was saved for microscopical examination, and later, at my office, tube casts were found, also some bile pigment.

Calomel and soda were administered, to be followed by a saline, and an infusion of digitalis and acetate of potassium to be continued. The latter had already been prescribed by another physician without seeing the case. Morphine to be given if the pains returned.

Remaining with her three hours, I left her resting comfortably, to return next morning.

At 5 o'clock next morning I was sent for. She had had slight chilly sensations and fever, with the return of the pain in the left side, but no hemorrhage; other symptoms unchanged. Temperature 102, pulse 120, had felt no fœtal movements, and had passed a very small quantity of urine—about three ounces.

Morphia and atropia hypodermically, the tampon removed and an antiseptic douche used. The os was still dilated, but there had been no bleeding. I decided that a miscarriage must be induced, but wishing a consultation with Dr. McHatton, and the assistance of a trained nurse, I waited until 4 P.M. for their arrival.

Dr. McHatton agreeing with me, we introduced an elastic bougie into the uterus at 5 P.M. At 7 A.M., August 19, labor commenced, only a slight amount of blood coming with the pains. Three hours later, the cervix being sufficiently opened, I delivered her with forceps. The child had been dead thirty-six hours or more. Before I could deliver the placenta I had to turn out a large quantity of blood clot. Evidently the placenta had been completely separated and had caused the hemorrhage.

She was given a douche, made comfortable in bed, and slept well for three hours. Then her bowels began to move copiously, and within three hours she had ten watery actions; she had nausea and vomiting; pain and great tenderness in the left hypochondriac region, but no

pain or tenderness in the pelvis; no odor to the discharge; the abdomen was distended with gas; the temperature was 102.6, pulse 110, and respiration 26.

Morphia gr. $\frac{1}{4}$ hypodermically every three hours, 10 grains quinine every six hours, antiseptic douches every six hours and hot applications to the abdomen was ordered.

The nurse's notes the next morning indicated no change in the symptoms, except that the bowels had moved eighteen times and were uncontrollable. Urine had been passed once voluntarily; it had a specific gravity of 1010 and contained albumin.

The same line of treatment was continued, strychnia gr. $\frac{1}{60}$ hypodermically every three hours being added.

The case continued to grow progressively worse each day, bowels uncontrollable, tympany enormously increased, pain in the left side unceasing, mental stupor deepening, picking at the bedclothes and muscular twitching constantly present; pulse 120 to 150, irregular and compressible; respiration 30 to 40, irregular and stertorous; temperature 103 to 106; but the lochia remained clear and odorless, nor was there at any time pain or other pelvic symptoms.

August 24th at 6.30 P. M., five days after delivery, she died.

Sir John Williams reports two cases in the January, 1895, number of the *London Practitioner*, which resembled this case except that his occurred in acute toxæmia, attended by eclampsia. Both exhibited evidence of alterations of the liver and spleen traceable to defective excretion of all the emunctories. In my case the liver, as well as the kidneys, was at fault, and the symptoms were due to uræmia of chronic Bright's disease plus the acute toxæmia of pregnancy. Now the chilly sensations and fever, which, taken with the pain in the side and tympany, would suggest general puerperal peritonitis, I must claim as a symptom of uræmia. Fever is frequently present in uræmia. I have seen it in uncomplicated Bright's disease during the uræmic stage and it was pres-

ent in my next case of albuminuria of pregnancy. Alfred Stengel, of the University of Pennsylvania, has an article in the *American Journal of Medical Science*, November, 1895, on "Fever in the Course of Bright's Disease and in Uræmia," describing this form of fever. In this article he gives three distinct groups of cases, in which acute or chronic nephritis and elevation of temperature are associated. The first includes cases of mild febrile reaction at the beginning of acute nephritis; second, elevation of temperature resulting from complicating diseases; third, the temperature is elevated in the course of the uræmic state. The case under consideration might be considered as belonging to the second group, if placental separation and retained clot before delivery is a sufficient complication to raise the temperature; but if this was true, delivery and cleaning out the uterus would have reduced the temperature. I think, however, it was entirely due to uræmia and belongs to the third group.

This uræmic fever, he says, may be insidious, a slow infectious manifestation of symptoms like the typhoid state; or again it may manifest itself suddenly and violently, being eclamptic in character. The case I have just given was insidious and gradually increased, the fever rising with the advance of the symptoms.

In considering the etiology of uræmic fever, Hughes and Carter in an article on "The Clinical and Experimental Study of Uræmia," *American Journal of Medical Science*, August and September, 1894, claim that this high temperature is an integral part of the toxæmia, as it occurs in the presence of other symptoms unquestionably uræmic, may abate with its subsidence, and is the result of no demonstrable lesion; the uræmia being due to a poison acting upon the central nervous system may disturb the heat-centers. This being true of other forms of uræmia, it should also be true of puerperal toxæmia.

I regret my inability to get post-mortem examinations in these three fatal cases, for I am sure much could be learned of these cases of chronic Bright's disease and

pregnancy combined, by such examinations. In the next case the toxæmia did not manifest itself until four days after delivery, while the uræmic fever was sudden and severe.

CASE IX.—Mrs. J. B., aged 24 years, white, primipara. Had escaped the usual complications of pregnancy, including albuminuria, the last examination of her urine, five days before labor, showing it to be free from albumin.

January 24, 1896, she was taken in labor, at 10 A. M., and at 6 P. M., assisted by Dr. McHatton, I delivered her of a living child with forceps. Her progress was slow, pains weak, and her strength exhausted by repeated attacks of vomiting.

Up to the 28th, she did well. On that morning she had a chill and fever, temperature 103, pulse 120, excited breathing and cardiac pains, without any pelvic tenderness or localized pain; no abdominal tympany, and a normal lochia. Quinine, phenacetine, and morphia was given every four hours until the fever was reduced. The next morning she had intense dyspnœa ; pain in the cardiac region, without any sign of disease of the heart; nausea and vomiting ; swollen, colorless face ; anxious expression ; pulse 140, irregular, tumultuous and very weak; temperature 99°; very little urine had been passed. A hypodermic of morphia, gr. $\frac{1}{4}$, and nitroglycerine gave temporary relief. She passed the day quite comfortably until 7 P.M., when the symptoms reappeared.

On the 30th, her condition was alarming. The temperature was 97.2°, pulse almost imperceptible, respirations excited, cardiac pain and dyspnœa intense and constant; headache severe, but mental powers undisturbed; skin blanched and covered with a cold sweat, as though she had had a severe hemorrhage; vomiting persistent, milk or simple ice-water being rejected; no pelvic or abdominal symptoms; bowels acting freely, but the urine was still diminished in quantity.

She was given strychnia, gr. $\frac{1}{60}$, and nitroglycerine, gr. $\frac{1}{100}$, every two hours; champagne in tablespoonful doses

every hour, morphia hypodermically as needed, and hot-water bottles kept in bed with her.

Dr. McHatton saw her with me in the afternoon.

Her condition was about the same for the next two days. The diminished quantity of urine suggested the propriety of an examination of that secretion, and we found that it contained a considerable trace of albumin and a few epithelial casts. This was quite a surprise to us, owing to the absence of albumin five days preceding confinement, her practically normal labor and good general condition immediately succeeding the delivery.

She was given 15 grains of calomel, to be followed by a brisk saline if her stomach could bear it; then the infusion of digitalis, and the strychnia and nitroglycerine continued.

As soon as the mercurial had acted her stomach became quiet, her other symptoms improved, and the quantity of urine rapidly increased, while the albumin diminished.

A few days later she was given Basham's mixture, and made a complete recovery, her urine being normal six weeks later.

Owing to her good general condition preceding her labor, and the urine containing no albumin, I did not suspect the possibility of urea being decreased in the urine. I now believe it was diminished before confinement, and that toxæmia was the cause of her feeble pains, vomiting, and slow labor. Nature failing to restore the urea to the urine after delivery, albumin developed, and she was saturated with the poison, causing her to have uræmic fever and other symptoms. The chill and fever took the place of eclampsia, the cause coming under the eclamptic form of fever, according to Stengel. There is a form of fever following eclampsia due to the violent muscular action of the fit which is often seen. This must not be confused with the sudden uræmic fever of Stengel; in the latter, if convulsions occur, the temperature is elevated before the fits come on. In the cases just given, the fever gradually subsided and gave place to subnormal tempera-

ture, the usual manifestation of uræmic poisoning.

With this case I conclude the series I am reporting, and with a few remarks on the maternal and fœtal mortality, I will pass on to the treatment.

The maternal mortality of this complication is usually placed at 25 to 32 per cent. In my record there were three deaths in ten cases of toxæmia, the deaths being in cases having histories of chronic nephritis. From 36 to 50 per cent. of the children are born dead, or die soon after birth; six of the children in my records lived, two were born dead, and two died soon after birth. The usual causes of death in children are asphyxia, placental separation, and poisoning from the absorption of the toxæmia in utero. If the toxæmia has existed in the mother for some length of time, the child is apt to be frail and badly developed.

Since we know that every pregnant woman is exposed to toxæmia, that it usually announces its presence by albumin in the urine with other waste products, and generally by decrease of urea, the first step in the treatment of all pregnant women is the frequent, careful examination of the urine. If albuminuria is present or urea is diminished, the woman is toxæmic and she is exposed to abortion, premature labor, eclampsia, coma, chronic Bright's disease, or other grave consequences, and the life of the child is at stake. The cardinal indications then, in this condition, are to promote elimination of the toxic materials circulating in the blood and restore the excretory organs to their normal functions. If, however, the poisoning is excessive, and the life of the mother and the fœtus is at stake, then the indication is to promptly empty the uterus.

Early in the pregnancy, before the fœtus is viable, we should attempt to restore the excretory functions without interfering with the pregnancy; provided, the mother's life is not exposed. After the child is viable, we should endeavor to promote elimination of waste materials, stimulate healthy kidney action, and prolong the pregnancy.

If, however, the mother's condition is alarming, then labor must be induced. Near the end of gestatio, nor if normal labor is near at hand, and the toxæmia is intense, premature labor should be induced. During labor, if the poisoning is severe, or eclampsia is present, delivery should be hastened. In post-partem toxæmia and eclampsia there is no obstetric interference indicated, but prompt elimination should be instituted, while treatment to allay the severity of the symptoms is being used.

Elimination of the waste materials and restoration of normal functions is obtained by diet, rest, bathing, diluent drinks, and the use of remedies to promote the rapid action of the excretory organs, the kidneys, liver, intestines, skin, and lungs.

Milk is pre-eminently the diet for all forms of kidney disease, and in this complication it yields the best results. But if it cannot be tolerated, or disagrees, a more liberal diet should be given, such as the white meats of fowls, fish, oysters, fresh fruits and good nutritious bread.

Absolute rest in bed will be of benefit, provided an abundance of good, pure air can be had. Like some forms of cyclicic albuminuria, position in bed relieves the urine of its albumin.

Warm baths, hot-air baths, or the hot-pack will aid the skin to eliminate the poison, and the drinking of hot water while bathing will increase the perspiration. If, however, a pyrexia be present or temperature be induced by the bath, it should be abandoned, for it may react by stopping the excretion. Light flannels should be worn always.

Pure water, or the carbonated waters—Apollinaris, or Vichy—may be taken with moderation. If excessively taken, water will often seriously embarrass the kidneys by a sudden increase of the fluids to be excreted. Coffee is good; tea acts as an astringent on the kidneys.

Now as to remedies to promote elimination by the kidneys, I am inclined to think that it is better practice to avoid urging these organs to excessive action. E. P. Davis,

of Philadelphia, cautions against the use of the potassium salts because of their irritant properties on the kidneys, and I believe this is true of other diuretics, digitalis, caffein, etc., in the presence of a high degree of toxæmia. If this class of drugs are given at all, it should be after elimination by other excretory organs has been thoroughly established. Even then the restoration of functions, usually attributed to their use, is really the result of the relief to the circulation obtained by other eliminative measures.

The liver being largely responsible for the causation of this condition, calomel and soda bicarbonate should be used early. Free purgation is in the line of rapid elimination. Salivation is easily produced in Bright's disease, and watchfulness must be observed when calomel is given in this complication; in Case VIII. slight ptyalism occurred.

Following the calomel, saline cathartics should be given; intestinal elimination is of immense value in uræmia. If the condition is urgent, hypercatharsis should not be feared if the patient is able to bear it. The purgative salts of magnesia and soda are to be preferred to vegetable cathartics, though colocynth and elaterium are good, and, at times, croton oil.

We have already spoken of the bath in the treatment of this complication; beyond its use there is little else of benefit. Pilocarpine is sometimes used, but it is too depressing and is liable to cause pulmonary œdema.

Pulmonary elimination can be obtained by the ammonia salts.

Caution should be observed in the eliminative treatment of this complication; that depression should not take place; and stimulants should be exhibited when needed, strychnia, nitroglycerine and the alcoholics being the best on this line.

All nervous excitement should be controlled by sedatives and narcotics, though not used to the extent of interfering with eliminative measures. Simple elimina-

tion is itself, at times, a remarkable sedative. Cases will come up, however, in which excitement must be controlled, and bromide and chloral, sulphonal, chloroform or morphine must be used.

I have seen in two or three cases in the above series, morphine act with most charming effect, and I do not share in the dread of this drug in puerperal toxæmia.

Elimination of the waste products having failed to restore the functions of the excretory organs, and the condition is urgent, eclampsia being imminent or other complications alarming, we should then empty the uterus. Either natural contractions should be brought about by the use of elastic bougies and the labor allowed to terminate unaided, or rapid dilatation should be employed and prompt delivery effected with the forceps or by version when great danger is at hand. Every antiseptic precaution must be observed when mechanical interference is demanded, and an anæsthetic should be used in rapid delivery, chloroform being the agent preferred. The nervous system should be well guarded against shock and sustained against depression. The treatment of the case after obstetrical interference has been employed, and in cases of toxæmia arising after natural delivery, should be conducted on the same lines indicated above—elimination of waste materials promoted, healthy functions restored, together with supporting and sedative management.

NEPHRITIS IN THE NEWLY-BORN, WITH REPORT OF THREE CASES.

BY W. W. TERRELL, M.D., DOUGLAS.

September. 22, 1889, I was called to see Mrs. C., who was expecting to be confined at any time, as I was to attend her. Having lost six children previously, during their infancy, apparently from the same cause, she said that she had decided to try a doctor, and see if he could do her or the expected child any good, by giving her something to prevent the death of the infant, if the fault was in her. Mrs. C. was 34 years old, was the mother of six children, all of whom had died within the first five weeks of infancy, and she said that all had died from the same symptoms—that is, from five to fifteen days after birth, they would commence to have fevers, cold sweats, vomiting, followed by convulsions, jaundice, and death.

The family history of this mother was good, she herself was, to all appearances, in perfect health. The history of the father was negative; his family record was good. Now I will give in detail an account of the three cases that come under this report.

October 12, after my visit of September 22, I delivered the mother of a fine girl child. Upon close inspection, no lesions could be found. The labor was natural and free from anything of note. Three hours after birth, the child's bowels and bladder were emptied. Shortly after this I left mother and child with a nurse.

The father was very anxious about the child and insisted that I see it as often as possible; this I did. Fifteen hours after birth both mother and child were doing well.

October 14, two days after birth. Both doing well.
October 15. Both doing well.
October 16. Both doing well.
October 17. Both doing well.

October 18, at 2 P. M., I was called to see the child, and found it with temperature 103, rapid pulse, dilated pupils, and cold perspiration. Nurse had not noticed any urine having been passed by child since my visit of the previous day.

October 19, 8 A. M., I introduced catheter and drew about one drachm of urine, dark and thick; this was all I could secure; repeated attempts afterwards; all failed, which led me to believe complete suppression had commenced before I first saw child on afternoon of the 18th. At 10 A. M., on the 19th, sprue commenced to collect upon teeth and lips, followed shortly after by convulsions—within a few hours; œdema was present: fever continued high, with weak but rapid pulse. On the morning of the 20th the child died; no post-mortem was to be had. Sixteen months after the birth of this child, it was followed by the advent of another girl, to all appearances, healthy; no lesions could be found. The second child was taken the eleventh day after birth, and died on the twenty-first. Its symptoms were so nearly that of the first, that I will not describe them. Eighteen months after the second child was born under my care, the third child of this report was born. It, too, had all the appearances of health; however, upon the sixteenth day after birth it was also taken in the same manner, and died fifteen days after the first symptoms. I diagnosed all acute nephritis, but they never yielded to any treatment.

The mother did not nurse any of her children after the first two were born—having had mammary abscesses and both glands having been destroyed.

This is my experience with nephritis in the newly-born. Can any one throw any light upon the high death-rate in this family?

THE AFTER-TREATMENT OF TRACHEOTOMY CASES FOR MEMBRANOUS CROUP, WITH AN OBSERVATION OF THREE SUCCESSFUL, OUT OF FOUR OPERATIONS.

BY R. M. HARBIN, M.D., ROME.

It might be proper to preface my remarks on the after-treatment of tracheotomy cases for croup with a brief discussion of the etiology, symptoms, diagnosis, and the medicinal treatment of membranous and diphtheritic croup.

The most recent text-books have ceased to give space to membranous croup as a disease distinct from diphtheria. While it is safe to regard membranous and diphtheritic croup as the same disease in densely populated districts, yet, I believe, there are many cases of membranous croup in isolated localities where diphtheria or other infectious diseases are practically unknown.

My first case of tracheotomy for croup was in a country district, in a family where there were five other children, who were all healthy at the time, and no sickness of any kind was observed either six months before or after the time of the operation, and no attempts at isolation were made.

The incubative period of diphtheria varies from one to twenty days. My classmate, Dr. J. S. Stribling, of Seneca, S. C., writes me that he was called to see a child, suffering with diphtheria, at 5 A. M., and in attempting to detach a portion of membrane from the tonsil, some sputa was projected into his face and mouth. At 3 P.M. he was taken with a severe chill and all the constitutional symptoms of diphtheria, thus making the incubative period ten hours. He had the diphtheritic sequelæ and

recovered sufficiently to return to his practice only after twelve months.

The grandmother of the child upon whom tracheotomy (my fourth case) was performed for diphtheritic croup, came from the country to visit the grandchild, with her own three-year-old child, on the fourth day after the operation. Six days later the child was taken with coryza, sore throat, swollen glands in the neck, erythematous rash over the back, etc., and returned to its home the next day. The second day after its return the child died with croup, thus making the incubative period about six days.

There are two forms of diphtheria. First, the pseudo-membranous inflammations, due to the Klebs-Loeffler bacilli; and, second, the varieties of diphtheria due to a streptococcus.

The Klebs-Loeffler bacilli are found only at the site of infection, and the systemic effects are due to the absorption of toxalbumin, or poisonous products of the bacilli. While bacteriological examinations will do much towards clearing up the diagnosis, yet there are many cases where the bacilli cannot be found, and we are forced to depend on the clinical symptoms to make a diagnosis.

From a clinical point of view, membranous croup occurs in children from two to five years old, being rare in young infants, and usually occurs in isolated cases, and is not contagious. It is gradual in development and slightly paroxysmal in character, and occurs without either pre-existing pharyngeal symptoms, constitutional depression, or glandular involvement, and has no sequelæ.

Diphtheria, on the other hand, begins in the pharynx, and, in the majority of cases, does not extend to the larynx, and has the constitutional symptoms of an infectious disease. It occurs along with other cases and is contagious. Albuminuria is diagnostic of diphtheria. The Klebs-Loeffler bacillus, when found, makes the diagnosis positive.

The medical treatment includes a great variety of drugs which should be tried, if possible, before resorting to surgical treatment. The remedies that have been recommended for croup are too numerous to mention, and I will only speak of a few that I have found to give temporary relief: Calomel, by sublimation, may be used, and fifteen grains every two hours is the quantity usually employed. Vaporized inhalations of lime-water and turpentine, along with cold or hot applications to the neck, may also be tried. Turpeth mineral occasionally gives relief.

It is very exceptional for a case of membranous laryngitis to recover from medicinal treatment alone, and we are driven to the consideration of the surgical treatment.

Opinions differ as to the relative value of intubation and tracheotomy, but the percentage of recoveries from statistics is about the same in both instances, being slightly in favor of intubation. From a collection of twenty-one hundred and eighty-three cases of tracheotomy by Lovett and Munroe, twenty-eight per cent. of recoveries is given, and from a collection of forty-two hundred and seventeen cases of intubation from all sources, about thirty per cent. of recoveries is reported. The statistics are misleading in that many mild cases are intubated, whereas, tracheotomy is done only as a last resort. The only advantage that I can see that intubation has over tracheotomy is, that the parents assent to its use early in the disease and the case can finally be submitted to tracheotomy. The great desideratum in both operations is to admit air into the lungs and to free the trachea and the bronchi of the retained sputa. Intubation is by far inferior to tracheotomy in fulfilling the latter indication, and the prospects for recovery can be estimated by the amount of expectoration.

After having given medicinal treatment a fair trial, and the dyspnea progressively gets worse, with beginning cyanosis, resort immediately to tracheotomy, for the exceptional cases that recover without operative interference at this stage of the disease are not to be considered.

In a majority of cases a sufficient time is had to give the various remedies a fair trial.

Where laryngeal obstruction is rapidly developed, the formation of membrane in the trachea, with an extension upwards, is probable, and this class of cases is not so amenable to tracheotomy.

The instruments needed are not numerous, and only a silver tube in addition to the general operating instruments is required.

An anæsthetic should be used very cautiously, and chloroform is preferred, as quietude of the patient is absolutely essential to a rapid operation. A child with croup makes a very rebellious patient when in the last stages of the disease.

The superior is preferable to the inferior operation, as the trachea is more easily exposed in the former. The ring of the cricoid cartilage is the guide, and from this point an incision should be made downwards, two and a half inches long, the larynx being steadied with a tenaculum.

A long incision makes the operation more easy to expose the trachea, and this is one of the most important details of the procedure. Dissection should be made with the point, or the handle of the scalpel, pushing aside any vessels that may appear and the lobes of the thyroid gland.

The trachea may be opened from below upwards with a small scalpel resting on the palmar surface of the right finger, which serves as a guide. The slit may be hooked up with an aneurism needle and the tube is introduced.

If the skin incision has been very extensive, it may be sutured with silk, and the tube must be secured by tapes around the neck. A feather should be dipped in lime-water and introduced into the tube to stimulate cough and expectoration.

The after-treatment is the most important part of the whole procedure, and I attribute the favorable results of my cases almost entirely to this part of the treatment.

The essential part of the after-treatment was the persistent use of lime-water and maintaining the room temperature at sixty to seventy degrees Fahrenheit. The feathers used should be of the proper size and stiffness, and should be soaked in a bichloride solution before using them. The tube should be moistened every few seconds, night and day, by dipping the feather in lime-water, thus allowing it to trickle down the tube. I believe lime-water to be an excellent solvent, and, if used too freely, it is only coughed out, making the expulsion of shreds of membrane and tenacious mucus more easy. The nurse can be directed to use it to the extent of producing a bubbling sound in the tube nearly all the time, and occasionally introduce the feather down into the windpipe to stimulate cough. When the excess of lime-water is coughed up, some of it is projected along the sides of the tube to the vocal cords, thus effecting disintegration of the membrane. This part of the treatment can be done continuously without disturbing the patient, and almost any nurse can very soon learn the indications to be met, and should be ever ready to remove the sputa when once coughed up, to prevent its being drawn back through the tube. Vaporized solutions for inhalation fulfill a good indication, but the apparatus necessary are usually inconvenient to be had outside the hospitals.

The inner tube should be removed every few hours and washed in a soda solution. Iodoform ointment should be applied every day to the edges of the wound, as the hard sputa forms such hard crusts that it annoys the patient. The chest should be rubbed with camphorated oil and enveloped in flannel every day. Whisky should be given as egg-nog, milk punch, or toddy, but if patient refuses, it should be given per rectum when necessary.

A liquid diet, including milk, broth, coffee, etc., should be given freely.

As the case advances expectoration becomes more liquid and easy, so that about the tenth day the sputa has lost

its purulent qualities and the tube may now be permanently removed.

After the fourth day, the whole tube should be removed and washed and a moist pad applied to the wound, so as to encourage breathing through the larynx. Tracheotomy keeps the patient alive until the membrane is disintegrated by the lime-water, and furnishes a means of expectorating the debris.

The causes of death after tracheotomy are septicæmia, diphtheritic poison, heart clot, and diphtheritic paralysis.

The patient who survives to the end of the third day will probably get well.

After the removal of the tube the edges of the wound should be kept in apposition with adhesive plaster applied in the following manner: Make two rolls of cloth about one sixth of an inch in diameter and one inch long, and place them on either side of the wound. Over these the plaster is applied every day for the first two or three days. The advantage of this is, the bottom edges of the wound are first approximated and the opening heals up usually in five to seven days, and voice returns to normal in about two weeks.

I have four cases to report, three of which recovered, and in all the operation was done as a last resort; so the favorable results cannot be attributed to early operations.

I regret that I have not the bacteriological examinations of the cases to report, and consequently only clinical diagnoses were made. In none of the cases was there the characteristic diphtheritic membranous deposit observed in the pharynx, or on the tonsils. Two of the cases were diagnosed diphtheritic, and the two remaining cases were non-diphtheritic. In both of the latter the result was favorable.

CASE I.—E. H., a healthy, four-year-old girl, living in the country, suffered with croup three days. The dyspnea had gradually developed, and at the time of the operation the patient was cyanotic and in a semi-comatose condition with a pulse of one hundred and sixty. The diag-

nosis of membranous croup was made. After having tried all the remedies that could be thought of without any success tracheotomy was done, September 23, 1891, at 6 P. M. Expectoration was abundant, and the child made a good recovery, and has been well ever since.

CASE II.—C. D., a boy three years and two months old, was taken with hoarseness four days previous to the time I saw him and had developed aphonia with excessive dyspnea. Membranous croup was diagnosed and tracheotomy was done, as a last resort, January 9, 1893, at 4 P. M. For the first twenty-four hours expectoration was scanty and temperature rose to one hundred and four degrees Fahrenheit, but by the persistent use of lime-water expectoration became more loose, and the fever was reduced. The patient made a good recovery and has been well ever since.

CASE III.—E. H., a delicate and nervous boy, seven years old, was taken with hoarseness March 8, 1893, at 8 A. M. Dyspnea suddenly developed at 3 P. M., with marked cyanosis, and pulse was reduced to forty, and was barely perceptible. Diphtheritic croup was diagnosed, as a younger brother died a few days previous with diphtheria, complicated by pneumonia. The patient reacted very slightly and tracheotomy was very hurriedly done with very unfavorable surroundings. Expectoration was absent and dyspnea was only partially relieved, on account of the formation of the membrane in the trachea. The patient died thirty hours later in a convulsion.

CASE IV.—R. G., a two-and-a-half-year-old boy was taken with hoarseness and croup December 2, 1895, at 9 P. M. I was called to see the child, with Dr. D. H. Ramsaur, December 6, at 1 P. M. The diagnosis of diphtheritic croup was made and dyspnea was now extreme. All the various remedies were tried with no success and at 4 P. M. tracheotomy was resorted to in the presence of Drs. Ramsaur and Wynn. The patient reacted well and expectorated freely, by using the lime-water as previously indicated. I might mention incidentally that the patient

vomited a worm six inches long on the third day after the operation. The tube was removed on the eleventh day and recovery was complete.

Conclusions:

First: Croup, whether diphtheritic or membranous, is almost invariably fatal without surgical treatment, and the few cases that recover by medicinal treatment alone are not to be considered.

Second: So far as the practical indications for tracheotomy are concerned, it makes no difference whether the croup be diphtheritic or membranous.

Third: Tracheotomy has the advantage over intubation, in that it gives a better means of expectorating the membranes and furnishes free drainage from the site of septic infection.

Fourth: Tracheotomy is a justifiable surgical procedure, and should be performed in all cases where our therapeutic resources have been exhausted and where the patient is in imminent danger of suffocation.

It should be done in hopeless cases, since it either offers a chance for the patient or promotes euthanasia.

Fifth: Tracheotomy keeps the patient alive until the pseudo-membrane disintegrates and resolves into a mucopurulent liquid and is expectorated through the tube.

Sixth: The after-treatment is the most important part of the procedure, and I attribute the successful results reported to the persistent use of lime-water as previously outlined.

DISCUSSION ON DR. HARBIN'S PAPER.

Dr. J. W. DUNCAN, Atlanta: Some years ago I read a paper before the Atlanta Society of Medicine on "Membranous Croup," in which I spoke of diphtheria and membranous croup as being two separate diseases, and the members were inclined to think that the two were similar diseases. I have taken the position that clinically they are separate and distinct diseases with some resemblance. But I am more inclined to think now that diphtheria is

more a constitutional than a local disease, and that the constitutional symptoms are more of the asthenic variety than those of membranous croup. That has been my observation in the cases that I have seen. I have seen a great deal of diphtheria. In Tennessee I saw three epidemics which lasted about three months each, during which time I had a great deal of practice in treating diphtheria cases. My experience with membranous croup is that it is a sporadic disease. We may have a case of it and no contagion following in other children, either in the same house or in the immediate neighborhood, while diphtheria is different. When we have an epidemic of this disease, it not only attacks members of the same family, but people in the immediate vicinity, and it prevails more as an epidemic. I have seen some well-marked sporadic cases of diphtheria, where we have one or two cases in the neighborhood, but as a rule, it prevails more as an epidemic than does membranous croup.

Dr. DOUGHTY: The question of the identity of the two diseases is an interesting one, and it seems to me some of the members might possibly throw light on the subject.

Dr. R. M. HARBIN: I do not know that I have anything to say except that I fully agree with Dr. Duncan, regarding the identity of the two diseases. Of course, we know this, that whether it is diphtheria or not, it kills children. It does not practically alter our treatment, and while we may have some doubt in our minds as to the exact nature of the trouble, so far as the patient is concerned, it makes but little difference.

With reference to tracheotomy, I believe it has a less mortality in membranous croup than in cases of diphtheria. We, probably, do not have the amount of septic absorption in the membranous variety that we do in the diphtheritic.

Dr. J. W. DUNCAN, Atlanta: I have been unfortunate enough to be in epidemics of diphtheria where some phy-

sicians were foolish enough to blister. I call it foolish, because they would apply blisters on the neck. An exudation would appear on the blistered surface as readily as it did on the fauces and soft palate. You may place a blister on the extremities and the diphtheritic exudation takes place. This is not so in membranous croup. If you should blister a child in membranous croup you would not have exudation as in diphtheria. I would be glad to hear from the other members of the Association on this subject, so that we may get a consensus of opinion. I do not think the two diseases are similar, nor is the treatment similar. The one would be more like treating an asthenic case, while the other is more like treating a sthenic patient.

Dr. L. G. HARDMAN, Harmony Grove: It occurs to me that it is important in these cases of throat trouble to differentiate, if possible, between the two diseases. Tracheotomy in membranous croup oftentimes is a very essential procedure, while, in the majority of cases of diphtheria, I think the results following it would be bad. Therefore, if possible, it would be well to differentiate between the two affections. I am inclined to think that they are entirely distinct; that they are not the same disease. We know that in laryngitis in children we have, as it is usually described, three grades of the disease, and in membranous croup, or in the peculiar type of laryngitis in which we have the formation of membrane, it seems tracheotomy is especially adapted. We should consider diphtheria as a systemic epidemic disease, which is not the case with membranous croup, the latter being a local inflammation, principally sporadic in character. Notice the treatment of the two diseases.

We know that we have the formation of the true membrane in croup; that most of the cases prove fatal whether operated on or not. Dr. Harbin seems to have had better success than most men. I remember some cases that were operated on at Guy's Hospital, London. My recollection

is that almost all of them died. I have not had much experience with operative procedures for these affections. I have seen cases die, however.

In reference to the medical treatment I must say that I do not look at the treatment of diphtheria in the same way that most of the profession do—that is to say, I do not believe that the cases of diphtheria are as fatal as is generally believed. The reason I say that is this: You find none of the cases are straight diphtheria, unless it is the severe cases, or those that die. In other words, take an epidemic of diphtheria and you will find a number of mild cases in which there is some diphtheritic deposit on the tonsils and pharynx, lasting for a few days, accompanied by fever and the usual symptoms, except there is a difference in degree. You will find these cases get well. You will also find that some of the severe cases do not get well. We have had an epidemic similar to that in the fall and winter, and while a good many died, others got well. It is the opinion of the laity that death is inevitable, and that they do not recover. I do not think so. I believe patients who have diphtheria in a mild form get well. I, therefore, believe that medicinal treatment is of some advantage. Take any epidemic of diphtheria and the type of the epidemic governs its mortality.

Dr. A. W. STIRLING, Atlanta: As Dr. Duncan has specially invited me to speak, there are one or two points to which I might, perhaps, briefly refer in connection with diagnosis. While the means of the propagation of diphtheria are fairly well understood, its origin has continued to be a difficulty to public health officers, from its APPARENT tendency at times to arise *de novo*, and from its connection with certain other diseases. It is chiefly to its connection with various forms of tonsilitis, especially lacunar and follicular, that I desire to refer. Diphtheria is a disease which appears to have a preference for previously diseased tonsils, and diseases of the tonsils not usually considered as diphtheria sometimes take on a true

diphtheritic type, so much so, that it is advisable that the diagnosis and prognosis in these doubtful cases should be very guarded, and that one should err on the safe side and be careful as to the treatment and isolation. It is very doubtful whether the mere bloodlessness of the mucous membrane under an exudation which has been removed, is sufficient proof that the case is not diphtheria. On the other hand, albuminuria with tube casts, denoting true nephritis, which should always be sought for, is strong evidence of diphtheria as opposed to simple tonsilitis.

Dr. L. G. HARDMAN, Harmony Grove: I recall to my mind such cases as have been referred to. I have in mind at the present time a little boy whose case was apparently a mild one. I could not tell whether it was diphtheria or not. The child went on and got well. In four or five days there was swelling of the feet, but the child was running around. A doctor brought him to me, and we concluded that the child had had diphtheria and that this was nephritis following it. We found a large quantity of albumin in the urine, with casts, and low specific gravity. The patient was simply put on iron and recovered. It may be possible that we might have nephritis following tonsilitis, but it is rare except in the specific contagious diseases that we have the renal trouble. A great many cases in a mild epidemic will get well. I do not know that it is the treatment exclusively, but we know it does some good.

Dr. EUGENE FOSTER: I would ask the Doctor if it is not more probable that his case was one of scarlet fever instead of diphtheria. In all cases the typical ones are the exception, and the non-typical are the rule, and it occurred to me, while Dr. Hardman was speaking, that his case may have been one of irregular scarlet fever with throat symptoms. I would like to know how he would make a diagnosis between the two.

Dr. HARDMAN: I did not see the case in the early stages. The history of Dr. Underwood regarding this case was that there was no eruption. Furthermore, in his town there had been quite a number of cases of throat trouble and I had seen two of them in the early stages. In this particular case there was a distinct diphtheritic deposit on the tonsil and pharynx. There were also other cases of like nature in the country at the time. I have no reason to think that the case was one of scarlet fever.

Dr. FOSTER: My idea is that it was a case of scarlet fever without eruption.

Dr. HARDMAN: You may as well say that it was diphtheria without a deposit.

Dr. EUGENE FOSTER, Augusta: I rise, Mr. President, to ask Dr. Hardman if the case just mentioned was not more probably one of mild scarlet fever—possibly "sine eruptione"—and not diphtheria. I have encountered scarlet fever very frequently, and if we get an epidemic of the disease in a community, it may be a severe or light one in type. In all epidemics, mild or malignant, some cases will be so mild that the affected children will not take to bed, and it puzzles the physician to make a differential diagnosis between it and other maladies. That was the reason I asked Dr. Hardman whether his case might not have been one of scarlet fever without eruption, not diphtheria. We may possibly find dropsy following diphtheria, but it is one of the rarest experiences. It is not rare to find albumin in the urine. It is one of the diagnostic signs. I do not remember to have ever encountered a case of dropsy either following or complicating diphtheria. I have seen it frequently in scarlet fever, and I would like to ask those who have experience with it to state to what extent they have found dropsy complicating diphtheria.

Dr. J. W. DUNCAN, Atlanta: I have had cases of diphtheria in which there was albumin in the urine. I have

also had cases of the disease followed by paralysis which lasted for weeks. I never have seen a case where the feet were swollen or in which there was considerable dropsical effusion, and yet the albumin was abundant.

Dr. R. M. HARBIN, Rome: I just want to add this with reference to the operation of tracheotomy. Oftentimes the argument is brought forth against it that a wound surface is created for the absorption of septic matter. I believe quite the opposite. If we make a free opening, we get an outlet for the debris of the diphtheritic membrane, and we are less likely to have septic absorption than without operation. The method of one of our best surgeons, who has done tracheotomy a number of times, is to simply open the trachea, put in a tube, tie a string around the neck, go off and leave the patient. I do not believe any case would succeed with such treatment. The introduction of a tube into the trachea is not half of one's success, but by using lime-water you can get a great amount of expectoration, and in proportion to the amount of expectoration you get, will the result be successful.

Two of my successful cases were those of the membranous variety. The other two cases were diphtheritic and one got well, and the other died.

Dr. EUGENE FOSTER: Please give me the differential diagnosis between so-called membranous croup and diphtheria. What is the method by which you can differentiate with certainty one disease from the other?

Dr. HARBIN: It is a difficult thing to do. Of course, we can have our individual opinions about it.

Dr. FOSTER: That is true, but I want to get your opinion.

Dr. HARBIN: Membranous croup often occurs in isolated cases without any pre-existing pharyngeal symptoms and is not contagious and has no sequelæ. In densely populated districts the two diseases should be regarded as

the same disease. Diphtheria, on the other hand, begins in the pharynx and extends downwards and occurs with other cases and is contagious. The treatment is the same in both diseases.

Dr. EUGENE FOSTER, Augusta: I think it is criminal on the part of any doctor to fail to isolate a case of diphtheria. I know it is not so considered by some people. I have no reference to the paper because I did not hear it. The point I wish to make is, that diphtheria is a most uncertain disease; that it is, in the great majority of cases, highly contagious, is unquestionably true, yet I have seen some instances in which there was a remarkable absence of contagion. Do not understand me as advocating carelessness. In my official position as President of the Board of Health of this city I deem it necessary, where there is doubt about the nature of the disease, to isolate the patient for public safety.

I remember being called to see a child in this town some ten years ago. The child had the symptoms of diphtheria. After examining the patient, the mother said to me, "What is the matter with my child?" I replied, "It is a case of diphtheria." There is a peculiarity about the diphtheritic membrane, and any physician who is familiar with it will recognize it. It has a dirty white, fried-egg-like appearance that no other membrane has. The diagnosis in the case of this child was subsequently verified by the fact that it was followed by a partial paralysis of the right leg which lasted for seven weeks. The mother said, "Well, doctor, if this is a case of diphtheria, all of my children will take it." "Why?" I asked. She said, "I discovered that membrane day before yesterday in the child's throat and all of us (the mother, husband, and the other two children) have been drinking from the same cup at the water-cooler, and all of us have slept in the same room (it being winter-time), so that the children could be kept under our supervision." I isolated the child and no extension of the disease resulted.

I mention this case to show that diphtheria is not invariably as contagious as some writers contend. We ought to be careful in making a diagnosis between diphtheria and membranous croup, if, indeed, they be different diseases. Because one member of the family has diphtheria, it does not follow that others will contract it by being exposed.

We ought to be very careful in drawing a distinction between diphtheria and membranous croup even if they be distinct diseases. I regard them as one and the same. If, however, I be mistaken in this view, the only safe rule is to treat every case of membranous croup exactly as if it were a case of diphtheria, *i. e.*, isolate patient, resort to the same constitutional remedies and operative measures, and when the case has terminated disinfect all fomites. To say that a case was one of membranous croup—not diphtheria—because that was the only one among several exposed children is absolutely unwarranted. I have several times encountered instances similar to that of the child which I have narrated. It does not necessarily follow that because one member of a family has diphtheria that others will contract the disease. So far as operative measures are concerned, I do not believe it makes much difference whether the case be one of diphtheria or membranous croup. If you can differentiate the two diseases they, of course, ought to be separated as a matter of scientific accuracy. Whenever a practitioner is called to a case of croup, even though it persists for two or more days, it is no reliable evidence that it is membranous croup. I have seen simple catarrhal laryngitis pursue this course.

Professor Doughty and I saw the case of a child about six months ago. The grandmother brought the child to Augusta to visit relatives. It had an attack of spasmodic croup so persistent and distressing that for thirty-six hours I was afraid that it had diphtheritic croup. The trouble persisted for three days, and it turned out to be a case of simple catarrhal laryngitis in which the swelling was

unusually great. There was no false membrane. I mention these facts because in a scientific body like this, we ought to get a clean-cut definition of diseases, if it is possible, and if they are not one and the same disease, we ought to be able to give the points in differential diagnosis. I am seeking light, and would be pleased to have the Doctor inform us how it is possible to differentiate membranous croup from diphtheria.

REPORT OF A FEW SURGICAL CASES.

BY J. B. S. HOLMES, M. D., ATLANTA.

Mr. President and Gentlemen of the Georgia Medical Association:

I herewith have the pleasure to report very briefly a few cases that I trust will not prove entirely devoid of interest.

Mrs. Z., aged 43, primipara, Georgia. Menstruation began at 14; always painful. One confinement at 20, since which time she has had severe backache, dragging sensation in lower abdomen, obstinate constipation, leucorrhœa, indigestion and extreme nervousness. For several years past profuse menstruation and severe pelvic pain. Three years ago her ovaries were removed by another surgeon, which gave no relief to the menorrhagia and very little to the pelvic pain. I examined her March 30, 1895. Found pelvic floor badly lacerated, rectocele, cervix torn and filled with cicatricial tissue. Uterus greatly enlarged and very low in the pelvis, endometrium extremely tender and would bleed upon the slightest touch. I dilated and curetted the uterus thoroughly, irrigated it well and packed it with iodoform gauze. Removed all cicatricial tissue from the cervix and carefully repaired lacerations in it and the pelvic floor. The result has been gratifying in the extreme. Her nervousness, and all pelvic pain, has been entirely relieved; she eats and sleeps well; her constipation has been overcome, and there has been no uterine flow since the operation, now nine months. She expresses herself as being entirely cured. This case is mentioned simply to emphasize the fact that disappointment in the results after an ovariotomy so often occurs where injury to the parturient canal is left unrepaired. Knowing the surgeon who removed her ovaries as well as

I do—knowing his medical ability and his conscientiousness,—I am convinced that there was urgent need of an ovaritomy in her case; otherwise, he would not have performed it. Many cases of a similar nature occur where we are censured for doing an ovariotomy, when if we had been careful to have explained to the patient beforehand that a second operation would be necessary, not only would our reputations have been protected, but our patients cured. I make it a rule in doing ovariotomies on this class of patients to always mention that before the reflex disturbances are entirely overcome that it may be necessary to do a second operation for the repair of the injuries of parturition. I have a number of cases similar to this in my note-book.

Mrs. R., aged 25, multipara, Tenn. Two miscarriages—one at six weeks, the other at two months. Insomnia, very bad digestion, poorly nourished and greatly emaciated; constipation. Extremely nervous; at times mentally unbalanced; indeed, all arrangements had been made to commit her to an asylum for the insane. A former patient of mine saw her mother and begged that she be sent to me for examination before committing her to the institution for the insane. I found the uterus greatly enlarged and retroflexed, the endometrium exquisitely tender and a double cervical tear; a severe laceration also in the pelvic floor. The left ovary was prolapsed, extremely sensitive and firmly fixed underneath the uterus. The right enlarged, very tender, but in good position. I advised in this case curettage of the uterus and repair of the lacerations in the pelvic floor, and a month later, the removal of the ovaries and tubes, at the same time elevating the uterus by shortening the round ligaments. On May 25, the uterus was curetted and the tears of the cervix and pelvic floor repaired, resulting in marked relief, in a few days, to her nervous condition. On July 13, the ovaries and tubes were removed and the uterus elevated. Five weeks later she left the Sanatorium with her nervousness relieved, digestion good, and her general

condition greatly improved. I am glad to say that she is in perfect health now, both mentally and physically, and is looking after her children and household affairs. She has gained thirty pounds in weight, is free from unpleasant symptoms of any character. A careful examination of the pelvic organs of many women, who are committed to the institutions for the insane, would, in my opinion, reveal a condition of things, which, if corrected early enough, would save this class of unfortunates from years of confinement and, what after a time becomes incurable insanity. I have had several similar cases.

Miss A., aged 35 years, South Carolina. Came to the Sanatorium September 1st, 1895. Three years previous noticed a little swelling in the lower abdomen. This increased but slightly and gave little or no trouble until last spring, when it began to grow rapidly. She suffered intense backache, increased by standing or walking, with a drawing sensation in the abdomen. Bowels regular, sleeps badly, appetite and digestion poor, greatly reduced in flesh, slight fever in afternoon. Upon examination I found a large mass completely filling the pelvis and extending as high as the umbilicus, which I supposed to be a fibroid of the uterus. The cervix was pushed so high that I could not touch it with my finger. Considerable ascitic fluid in the abdomen. Every preparation was made to do an hysterectomy, and the abdomen was opened September 5. I found a large fibroid growth springing from the left ovary, wedged very firmly in the pelvis, and extending as above stated, as high as the umbilicus. It was lifted out with considerable difficulty and the pedicle ligated very close to the uterus, including the tube in the ligature. The right ovary was cystic, and it, together with the tube, was removed. The uterus was found to be healthy and of normal size. The omentum was freely studded with miliary tubercle; no intestinal adhesions. The abdomen was freely flushed with a normal saline solution at a temperature of 105 and glass drainage used. The tube remained forty-eight hours. Her recovery was

uneventful and she left the Sanatorium in five weeks in excellent condition. I saw her about thirty days ago. She had gained about twenty pounds in flesh, had had no return of the ascitic fluid, and, indeed, of no unpleasant symptoms, and is to all appearances well. This was a clear case of tubercular peritonitis complicating the ovarian fibroma, and while thus far the cure seems to be complete, I shall make inquiry from time to time concerning her condition, and shall watch the result with considerable interest.

Mrs. V., aged 25 years, multipara, Georgia. Five years ago had severe pain in the right iliac region, confining her to bed for several days, since which time she has suffered with abdominal pains. Three years ago her ovaries and tubes were removed by another surgeon. This gave her little or no relief. Three months later she returned to the same surgeon and had local treatment for nine months, not being benefited in any particular. When she came under my observation she was suffering with severe pain in the back, the right iliac region, extending up to the right lumbar region and down the right limb, greatly increased by standing. The least exertion produced a tired and exhausted feeling; suffered almost constantly with headache, was extremely nervous, no appetite, bad digestion, severe constipation. From a careful examination I was satisfied that she had intraabdominal adhesions, probably due to old appendicitis. I expressed this opinion to her and advised that an exploratory incision be made, to which she readily assented. This was done January 11, and the appendix was found firmly adherent to the ascending colon and abdominal wall; the cæcum literally suspended. In standing, the weight of the cæcum and colon pulling upon the adhesions produced the severe suffering that she always experienced. The adhesions were broken up and the appendix removed. I not only found several very small enteroliths in the appendix, but found a badly diseased mucous membrane. Her recovery was rapid and she left

the Sanatorium about five weeks after the operation with all pain relieved, digestion good and able to stand and walk without difficulty or discomfort. While, of course, I do not make the statement that her ovaries were not diseased, I am strongly of the opinion that all of her pelvic and abdominal trouble had been produced by the diseased appendix with its dense and firm adhesions. This case emphasizes the wisdom, in doing abdominal work, of carefully searching for and liberating adhesions of every character.

Mrs. N., aged 25 years, multipara, Florida. About eighteen months before coming under my observation noticed a slight increase in the size of her abdomen, which grew rapidly and at the expiration of a year had become so large as to render her extremely uncomfortable. It was then tapped and a large quantity of fluid withdrawn. Three months later it was again tapped, but soon reaccumulated, and in July, about three months from the last tapping, she came to me for operation. The abdomen was opened on the 27th of July and a large dermoid cyst, weighing twenty-two pounds, was removed. I have never encountered denser adhesions than existed in this case; it was with the greatest difficulty that they were broken up and the entire cyst liberated. Unquestionably the adhesions were the result of inflammatory action caused by the two punctures and what would have been an extremely simple operation was thereby rendered a most tedious and difficult one. It was found necessary to irrigate and drain, and with the exception of a small sinus in the track of the drainage tube, which remained open about six weeks, her recovery was satisfactory in every respect. With this class of cases it is always best to do a radical operation at first and not tap.

Mrs. McN., aged 37, multipara, South Carolina. About February 1, 1896, sent for her family physician on account of a severe uterine hemorrhage. After questioning her he found that she was about three and one half months pregnant. He made a digital examination and found a mass

protruding, as he supposed, from the cervix. He gave ergot and awaited developments, as he was sure she was having an abortion. After waiting for some time, she having no pain, he again examined her and discovered that the mass did not come from the cavity of the uterus, but that it was a fungus growth on the anterior lip of the cervix. He then gave her an opiate, placed a tampon in the vagina and left. Returning the next day he made an examination with the speculum and then diagnosed malignant disease of the cervix, and referred the case to me for operation. She came to the Sanatorium on the 10th of February, and an examination revealed a large cauliflower growth, about the size of a hen's egg, on the anterior lip of the uterus. The posterior lip was not involved, nor was any vaginal tissue. Her grandmother had died from cancer. I advised hysterectomy at once. She was then about four months pregnant. On February 15, after cleansing the vagina, I thoroughly curetted away the entire mass from the anterior lip, seared over the cervix with a thermo-cautery, again thoroughly cleansed the vagina, and did an abdominal hysterectomy, removing the uterus, ovaries and tubes. The ligatures upon the ovarian and uterine arteries were brought down through the vagina and the peritoneum was carefully closed with a running suture of fine silk, leaving all raw surfaces extraperitoneal. The abdomen was closed without drainage. Gauze packing was placed in the vagina and removed at the end of forty-eight hours. I did an abdominal hysterectomy in this case, as the uterus was so large that I feared in dragging it through the pelvis that the ligatures upon the uterine and ovarian vessels might be made to slip, and dangerous and, perhaps, fatal hemorrhage ensue. Her convalescence was rapid and satisfactory in every particular, her temperature at no time being more than 99½ degrees, and pulse not beyond 90.

Mr. S., aged 45, an Englishman by brth, but a resident of Georgia for a number of years. About two years ago he observed a small mass in the right inguinal region

which increased gradually in size. He consulted me in the fall of 1895, at which time the tumor had attained such proportions as to almost fill the pelvis, and to make considerable pressure on bowel and bladder. Not feeling satisfied as to the nature of the growth, but strongly suspecting a sarcoma, though the slowness of its growth militated against this opinion, advised an exploratory cœliotomy with a view of removing the tumor, if practical. The tumor continued to increase in size, and he came to the Sanatorium for operation February 22, 1896. After the usual preparations the abdomen was opened in the median line, the mass found largely filling the pelvis, firmly adherent to the right side of the pelvic wall and deep down in basin of pelvis. Had little difficulty in enucleating the mass and removing it, which proved a multilocular hydatid cyst.

The wall of mother cyst was ruptured in the effort at removal and the smaller cysts which it contained were noticed, making clear the diagnosis. The omentum showed a very peculiar condition, and on examination macroscopically, and, later, microscpically, showed innumerable echinococci cysts, varying in size from a pin-head to a pea. The abdomen was thoroughly irrigated with normal saline solution at a temperature of 105° Fahr., glass drainage tube used, and patient put to bed in good condition. During the first twenty-four hours twenty-five ounces of urine were voided, the next twenty hours twenty-one ounces, and from that time, 10 A. M., Thursday, the 27th, until his death, Friday, 11 P. M., thirty-seven hours, only five ounces had been passed, and not any from 4 P. M. Thursday until his death, a period of thirty-one hours. The catheter was passed several times, only to find an absolutely empty bladder. Have never had a patient after an abdominal section do better for the first forty-eight hours than did this one. His bowels had been well opened, his pulse had never exceeded 100 per minute, and the temperature had not passed beyond 100° Fahr.

With the profound suppression of urine, constant and violent uræmic vomiting developed, persisting until 11 P. M. Friday, just a short time before his death. There were no evidences of sepsis or peritonitis, and I attribute his death entirely to acute uræmia, the result of total suppression of urine. Every effort was made to stimulate the kidneys to activity, hot fomentations in the lumbar region, digitalin and tincture of digitalis, hypodermically, intravenous infusion of saline solution, but all efforts proved futile to arouse them to any action whatever.

A careful chemical analysis of his urine was made before the operation, with absolutely negative results. I feel assured that the tubules of the kidneys were freely studded with the echinococci and the irritating effects of the ether produced a complete blocking up of the kidney structure.

I regret a post-mortem was not allowed, as the condition of his kidneys would have been a matter of great pathological interest. The specimen is the first of the kind I have ever seen.

REPORT OF A FEW INTERESTING SURGICAL AND GYNECOLOGICAL CASES.

BY MONTAGUE L. BOYD, M.D., SAVANNAH.

Mr. President and Gentlemen:

I shall take up very little of your time with some of these cases.

CASE I.—The photographs I show you are of a young man from New York State, who, while hunting in Bryan County, accidentally discharged a shot-gun, loaded with bird-shot, and received the entire load in his jaw, as you will perceive upon inspecting this picture.

The inferior maxilla, from the chin to the angle, was shattered, and the soft parts in every direction were filled with shot. For weeks after the accident the shot came out or were picked out of the wound.

That portion of the bone, posterior to the angle, necrosed, and was removed. Two or three operations in cutting away the inverted edges of the wound and bringing them together assisted in getting the result you see in the second photograph.

It was my purpose to dissect up the angle of the mouth that you see drawn down, and fix it in such position as would have given the best possible shape to the mouth, but the patient became tired of staying at the hospital and declined further surgical interference. He masticates perfectly with the other side and enjoys perfect health.

CASE II.—E. E. S., age 35, married, occupation musician, consulted me in the spring of 1894.

The deformity, as you will perceive from the photograph I hand you, is a very peculiar one. There is a protuberance projecting from each femur on the inner

aspect of the thigh, at the lower part of the middle third and about one half as large as the thigh, and forming an angle of about 45° with the latter. The protuberance in the right thigh was ten inches long; on the left, four inches. This man, when sitting so that his lower extremities could not be seen, presented the appearance of a magnificently developed specimen of manhood, and is quite handsome.

On April 10, 1894, the protuberance on the right thigh was amputated, also both legs at the knee-joint. The shorter protuberance on the left thigh was not removed. The operation was done April 10, and the patient was discharged April 30, 1894. He went to New York soon afterward and was supplied by A. A. Marks with artificial limbs, upon which he walks very well.

This case is reported, not because of anything remarkable in the operation, but because of the peculiar congenital deformity.

CASE III.—Mrs. J., aged 30, white, was sitting at a machine sewing. Her brother-in-law was sitting three or four feet behind her "fixing" an old 38-caliber pistol that was "unloaded," but the pistol was accidentally discharged and the ball entered Mrs. J.'s back just above the crest of the ileum and about two inches to the left of the center of the spinal column.

The victim suffered much pain, passed bloody urine, and numerous blood clots from the bladder.

Micturition was painful, frequent and spasmodic, only a small quantity of urine being passed at a time.

There was pain and tenderness all over the lower part of the abdomen for two or three days. This gradually subsided until about the fifth day when only a very small spot was sensitive to pressure. On the third day after the accident I instructed the patient to sit up to pass her urine, and the third time she did so a 38-caliber ball fell into the chamber.

All the bladder symptoms at once subsided and the patient made an uninterrupted recovery—in three weeks was entirely well. At no time did the temperature exceed 100°.

CASE IV.—Mrs. L., German woman, had been in America two years. I was called to this case April, 1894, and found her suffering intensely. She could not talk English well and I could not talk German at all, but managed to understand that she wanted me to make a vaginal examination.

Upon attempting to introduce my finger into the vagina I detected a hard substance protruding. Inspection showed the stem of this old-fashioned butterfly pessary. Taking hold of the projecting end, the pain caused thereby was so great I was forced to desist from making any attempt to remove it. I sent out for chloroform, anæsthetized the patient and removed the instrument I show you.

The body of this barbarous affair had sloughed through the anterior vaginal and posterior vesical walls, and I had to deal with a vesico-vaginal fistula from the cervico vaginal junction to within one inch of the meatus. This was operated on subsequently; two operations were done, and almost a perfect result obtained. There was, the last time I examined the patient (three weeks after the last operation), a pinhole opening near the top of the wound which only leaked if the bladder became full. The patient was tired of operations and refused any further surgical interference. Her condition was so much better than it had been she felt, comparatively speaking, that she had no trouble.

Since writing the above I have seen the patient and the pinhole opening referred to is healed and she is well.

CASE V.—Mrs. R., age 34, one child three years old. Ill health dated from the birth of child.

History.—Had much pain in the right side and a slow convalescence from labor; more or less pain ever since. For several months before seen by me, the patient had been a helpless invalid and suffered greatly. I saw her

first in March, 1895. She had been in bed several weeks and suffered much pain in the right side.

Examination disclosed the right fallopian tube greatly distended with liquid, so as to make a tumor, as well as it could be outlined, as large as a large orange.

The diagnosis of pyosalpinx was made and an operation advised.

On December 15, 1895, the usual median incision was made in abdomen, and a very much distended pus tube disclosed. This was bound down to the broad ligament and to the uterus by firm and extensive adhesions, so much so, that the question of the advisability of opening and draining through the vagina was considered. However, by gentle and persistent manipulation tion with the fingers and handle of the scalpel, the adhesions were at last overcome and the tumor removed. It was necessary to empty the sac of pus before this was possible. The aspirator at hand being out of order and failing to work, this was done by passing a curved needle, armed with stout braided silk, through the tumor in two places, after the manner of passing these sutures in the bladder in a suprapubic cystotomy before opening it. Cutting between these, the pus was drawn out with a syringe, and wiped out with sponges, about twelve ounces being removed. The raw surface left was so extensive it was deemed best to use drainage. A glass tube was inserted into Douglas' cul-de-sac through the lower angle of the incision. As bloody serum continued to accumulate, the drainage tube was left in place for three days. Upon its removal the opening was closed by the silkworm ligature placed during the operation for that purpose. Up to this time, and for three days subsequently, the patient had no rise of temperature. On the third day after the drainage tube was removed, a slight chill occurred, and the temperature rose to 102.5°. The dressing was at once removed, the stitch taken out, and about half an ounce of pus squeezed from the opening.

The opening was washed out with sterilized normal salt solution, and peroxide of hydrogen injected into it, and then packed with iodoform gauze. This was repeated every day for about two weeks, when the sinus was healed and the patient discharged. No ventral hernia has appeared. The patient is quite well and happy now.

CASE VI.—Mrs. C., aged 42 years; married; had several children, the youngest aged ten years. Was seen by me first in June, 1895, and a diagnosis of subperitoneal fibroid tumor of uterus was made. She was suffering intense pain simulating labor pains. Hemorrhage was abundant, and the patient was very anæmic and reduced in strength.

Morphia sufficient was given subcutaneously, from time to time, to make the pain bearable, and ergotin in two-grain doses administered every three hours. The pain and hemorrhage being somewhat relieved by this treatment, the patient was advised to go to the Savannah hospital for a radical operation.

On the 28th of February a suprapubic cœliotomy was done in the median line. The tumor, as large as a child's head at birth, and extending up to the umbilicus, was enucleated. The cavity from which the tumor was removed was so large that it was deemed best to remove the uterus and appendages. The cervix was cut across just above the fundus of the bladder and the latter stripped down with the fingers, an assistant holding a sound in the bladder. Too much violence was exerted either by me or the assistant and the sound punctured the posterior wall of the bladder. This was immediately repaired and the peritoneum stitched over the wound. The bladder was then filled with water to be sure it did not leak.

The operation was completed by ligating the ovarian arteries and tying off the broad ligament in sections on the pelvic end and clamping with large hæmostatic pressure forceps on the uterine end and cutting between. The uterine arteries were then ligated by running a needle

armed with silk around them. No elastic ligature was used.

The incision in the anterior portion of the cervix was met half-way by a similar incision from behind which detached the uterus and left the healthy cervix, which after stitching the peritoneum over it, made a firm floor for the abdominal cavity. A glass drainage tube was put in Douglas' cul-de-sac and left for forty-eight hours. There was some oozing, which was removed every six hours with a soft rubber catheter attached to the nozzle of a small, hard rubber syringe.

The temperature of the patient did not at any time exceed 99°, although there was a stitch abscess formed around the strand of silkworm gut which had been put in at first to close the opening left for the drainage tube.

Patient was discharged from the hospital on the first day of April, 1895, and has been well ever since. She is a working woman, does her own housework and nurses a son who is in the last stages of consumption. The peritoneum and fascia were brought together with a continuous catgut suture; silkworm gut through and through sutures, having been first placed. These were tied afterwards.

CASE VII.—Mira F., octoroon, aged 40, no children. This patient was kindly brought to me by Dr. J. G. Jarrell, of Savannah, who had made the diagnosis of uterine fibroid beginning to break down. Patient was suffering great pain and was bleeding profusely. The blood was at times mixed with foul smelling pus. There had been a slight rise of temperature for several weeks. Operation for removal of tumor, uterus and appendages was advised to be done without delay. Suprapubic cœliotomy was done in the same manner as described in the case of Mrs. C. There was practically no fever and very little pain following the operation. On the afternoon of the second and third days the temperature reached 100°; normal in the morning. No drainage tube used and primary union secured. Two weeks after the patient left the hospital,

however, Dr. Jarrell discovered a small mural abscess, and upon opening it found and removed a silkworm gut ligature which had been overlooked. A few months later a small ventral hernia made its appearance at the site of the abscess. Patient refused to submit to operation for its cure. With this exception the woman is well and makes her living as a laundress.

CASE VIII.—Mrs. S., white, aged 37, married; no children; no pregnancy. I saw her first in April, 1895, and obtained a history of mental derangement, dating from about twelve months previous to that time. She had been treated by several physicians with no improvement. She was at times violent and destructive, and had about demolished all of the china, looking-glasses and other things breakable about the house. At other times she was taciturn and morose, and her mental trouble took the form of melancholia.

Upon examination I found a large subperitoneal uterine fibroid tumor, reaching almost to the umbilicus. Believing that the mental trouble was wholly or in part dependent upon the existence of the tumor, I advised its removal.

On May 13, 1895, at the Savannah Hospital, a suprapubic cœliotomy was done in the median line, and the tumor, uterus and appendages were removed in the manner described in the case of Mrs. C., except that no attempt was made to strip the bladder from the uterus. The incisions for the removal of the latter were made just above the fundus of the bladder. A drainage tube was inserted, but removed in twenty-four hours, there being practically no effusion into the abdominal cavity. The temperature did not rise above normal at any time.

I quote from the hospital notes, made the 15th of April: Patient discharged, physically well, and much improved mentally.

Within eight weeks from the date of the operation the patient was doing her own housework, including the cooking for herself, her husband and her mother. She has

had three or four attacks of mental aberration since, accompanied by her old destructive cacoethes, but they lasted only a few days, with one exception. On this occasion, last October, I think it was, she remained violent for several weeks. Her husband became discouraged and prepared to make arrangements to send her to Dr. Allen's institution near Milledgeville. Before arrangements could be made for that purpose she became lucid and has been so ever since. She is not strong-minded, but her physical health is good and her mental condition greatly improved.

CASE IX.—Jane ——, colored, age 45, married, no children. For twenty years had complained of pain in the region of the left ovary, the pain had grown progressively worse until, at the time she came under my observation, she was unable to do any work and was confined to her room.

Operation for the removal of the ovary was advised and the consent of the patient obtained. The ovary was enlarged and adherent to the tube and pelvis. In fact, the ovary and the tube were so matted together by adhesions that it was difficult to distinguish one from the other. The fimbriated extremity of the tube was so firmly adherent to the pelvis that it was ligated and left there. Patient recovered promptly and perfectly, has had no pain since, and does manual labor for her living.

CASE X.—MRS. S., white, age 46, widow fourteen years. Has had five children—youngest child fifteen years old. Had no trouble with any of her labors, has always enjoyed good health, with the exception of occasional attacks of migraine; these she has had all her life. In the spring of 1888 she noticed a gradual enlargement of the abdomen. She was seen by a physician at Milledgeville, Ga., her home, from time to time, and, she says, the diagnosis of ascites made. In August, 1889, she was tapped and two and one half gallons of fluid obtained. For about twelve months after this tapping there was no perceptible enlargement of the abdomen. It then gradually began to enlarge, and was tapped again in June, 1892, re-

sult, three gallons of fluid. About six months after this the enlargement began again, but increased slowly, and she was not tapped again until January, 1895; result of the tapping, four gallons of fluid. Patient menstruated regularly through all this time, and had no pain of consequence and suffered little inconvenience except that caused by the enlargement and consequent weight of the abdomen. In February of this year she came to Savannah to consult me. I diagnosed ovarian cyst, and advised operation. My diagnosis was subsequently concurred in by my friends Drs. J. B. Read and T. J. Charlton,, who saw her with me at my office and at my request. The morning of the 17th of March, the patient having been anesthetized, an incision three inches long was made in the median line, beginning three inches below the umbilicus. The abdominal walls were very much attenuated, the recti muscles having disappeared from their usual position, there was practically nothing to cut through before reaching the sac except the skin, a very little fat, the fascia and peritoneum. The sac was unintentionally cut into and some of the fluid escaped before the sac could be caught and held up by vulsellum forceps. When this was secured to prevent the escape of the fluid into the peritoneal cavity, the patient was turned on her side and a large foot-tub and two water-buckets filled with the fluid. The sac and the left ovary to which it was attached was then removed. The right ovary was found to have undergone cystic degeneration and was removed. The peritoneal cavity was carefully sponged out to remove the fluid which had found its way there, and the abdominal incision closed by a continuous catgut suture in the peritoneum and fascia and through and through silkworm gut interrupted sutures; no drainage was needed. The recovery was uneventful. The temperature reached 100° on the afternoon of the first and second days after the operation. After that the temperature was normal until the patient left the hospital on the 11th of April. The fluid and the sac weighed seventy-five pounds. The

photograph I show you does not give a good idea of the woman's size as the abdomen loomed up on the operating-table.

DISCUSSION ON DR. BOYD'S PAPER.

Dr. GEORGE H. NOBLE, Atlanta: I have but a few words to say and that is in reference to drainage. Perhaps from temerity we drain too often. I do not mean to say that drainage is unnecessary. In the vast majority of cases it is unnecessary to drain more than twelve or twenty-four hours. Very rarely do I see the necessity of prolonging drainage for a number of days. In a thoroughly aseptic operation there is no reason for drainage except for oozing which will not respond to the means at our command. This can be controlled by gauze packing in the course of twelve or twenty-four hours.

Dr. W. H. DOUGHTY, JR., Augusta: I have listened to Dr. Boyd's paper with a great deal of interest. I saw a case sometime ago that was, to me, quite interesting, and I would like to have some light on it if anybody can give it to me. By way of discussion I wish to mention the case very briefly. It was a man who had received a pistol-shot wound in the back, about three inches from the spine. The ball, as far as could be ascertained, passed obliquely towards the spinal column. The wound was about opposite to the eighth dorsal vertebra. Upon being shot he fell to the ground and was paralyzed. The paralysis involved the bladder and the rectum. I saw this man about a month after the injury. He was completely paralyzed in his lower extremities, and there was also marked diminution in sensation over the entire lower extremities. In other respects he was in good condition, except that he had cystitis from using a catheter, and was beginning to develop bed-sores. The wound made by the ball had long since healed, there being only a scar left. There had been no suppuration. There was no guide to the seat of injury in the spinal cord except the point of entrance of the ball, which was too far away

from the spine to give very much information, unless it was assumed the ball had passed in a horizontal direction; and there was nothing about the reflexes, which were abolished, that would point distinctly to any particular segment of the spinal cord as being the seat of injury. Examination of sensation disclosed the fact that it was markedly diminished over the lower extremities and over the trunk as high as the tenth intercostal nerve. Along the area of distribution of this nerve there was some degree of hyperæsthesia. The man was rapidly declining and evidently had nothing in prospect. I operated upon him with the hope that I might find something that could be removed. I gave an unfavorable prognosis. I did not see any prospect of his living without surgical interference. I removed the spinous processes and laminæ of the seventh, eighth and ninth dorsal vertebræ, uncovering that part of the cord which was supposed to be the seat of origin of the roots of the tenth intercostal nerve. Upon exposing the spinal cord I found running across its posterior surface the remains of an old blood clot. It was on the outside of the dura mater. I removed it, and finding nothing between the bone and dura which could press on the cord, I opened the dura posteriorly and examined the spinal cord as thoroughly as it was possible through the area that was exposed. I could not find anything apparently the matter with it. There was no splintering of bone, nor evidence of the ball having entered the canal of the vertebral column, and nothing to show just why the cord should have lost its function. The man having spent about as much time on the table as was safe for him, I did not think it was warrantable to remove any more bone for the purpose of making a further exploration of the cord. I therefore closed the wound. The man recovered from the operation and his paralysis improved to a slight degree. Some three months later he died.

The interesting thing about the case to me was the fact that being guided by what is known about the point of

origin of the spinal nerve roots, I was led to open the spine just over the seat of this old blood clot, came down upon it, or the remains of one which had nothing to do with the paralysis. There was absolutely nothing to show why this man should have been paralyzed in the lower extremities. If the conditions had been favorable, and I could have opened more of the vertebral canal, I might have found some injury to the cord, but the man's condition would not permit of prolongation of the operation.

Dr. BOYD (closing the discussion): With reference to the question of drainage, I think the more abdominal work we do the less we are inclined to drain. I simply reported my cases as they occurred, and I confess that I drained them more from timidity than anything else.

A REMARKABLE CASE OF VENTRAL HERNIA CURED BY A FLAP OPERATION.

BY GEORGE H. NOBLE, M. D., ATLANTA.

Here is a brief report with some rough schematic drawings of an enormous hernia between the ensiform cartilage and the umbilicus.

The subject was a very large woman who came to me from a neighboring State, giving a meager history, saying that the protrusion first appeared after severe straining and grew rapidly until it reached the size of an adult head. The treatment she had received consisted in local applications only, no attempt at operative measures having been made.

The case is one of considerable interest on account of such a large hernia in this region and because the expansion of the ribs prevented closure of the ring by approximation of its margins, necessitating, therefore, a flap operation to close the aperture, which was large enough to pass my closed hand through without resistance.

Indeed, a prominent surgeon ventured the assertion that if ever I cut the woman open I would never get her sewed together again, so it was my desire to demonstrate that the operation was feasible, having studied or worked out the method most suitable to it.

To fully appreciate the intrinsic strength of the flap it is well to refer briefly to the distribution of the aponeuroses in this locality. The three flat abdominal muscles shade off into aponeurotic layers as they approach the linæ semilunares; that of the external oblique passes anterior to the rectus muscle to join its fellow of the opposite side; that of the transversallis passes posterior to the muscle to join its fellow, while that of the internal ob-

lique divides at the external margin of the rectus into two layers. The anterior passes in front of the muscle, and unites with the aponeurosis of the external oblique. The posterior passes behind the muscle uniting with the aponeurosis of the transversallis muscle. These two lamella again unite at the inner margin of the rectus and are finally lost in the linea alba.

The recti muscles apparently divide the aponeurotic or fibrous layers equally in an anterio-posterior direction, but intrinsically the greatest strength lies in the innermost surface of the abdominal walls or is inherent to the transversallis fascia. The operation was a very simple one, consisting—

FIG. I.

Transverse section of the body, showing relative size of hernial opening, *A A*, and sack; also relation of fascia and aponeurosis to the recti muscles, *C C*. Excess of sac trimmed away at *B B*, and peritoneum stripped down to *A A*, and united in the median line as shown in Fig. II.

1. In trimming away the excess of the sack and uniting the peritoneum with buried catgut sutures. (See Figs. I. and II.)

2. Four strong tension sutures were passed through the abdominal walls, piercing the semilunar lines down to the peritoneum, but not implicating it. (See Fig. II.)

3. A semilunar flap was carefully outlined upon either side over the recti muscles with the straight or vertical sides upon their outer margins, and the convexed borders turned toward and extending to the hernial ring. The aponeurosis of the external oblique and the outer layer of that belonging to the internal oblique muscles were cut through and the flaps liberated, except where they joined the ring and turned over the opening accurately abutting the edges, in which position they were stitched with

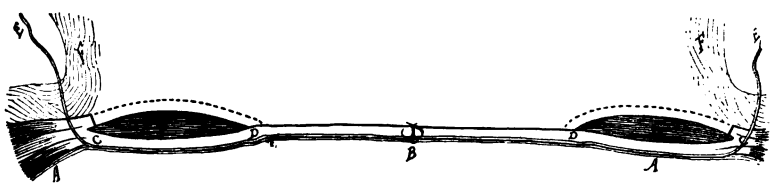

FIG. II.

Peritoneum, *A A*, united by buried catgut in the median line, *B*. The dotted lines, *C D*, represent the anterior sheath of the recti muscles, which has been cut away and turned over the hernial opening, *D D*, and united by buried silk sutures in the median line, *B*. *E E*, is a tension suture passed down to the peritoneum, but not implicating it. *F F*, skin and fatty tissue turned aside. *G G*, recti muscles.

buried silk sutures. The convexed borders coincided with the margins of the ring to which they were made fast. (See Figs. II. and III.)

4. The recti muscles were brought in direct apposition by surrounding them with large cat gut, thus adding another layer of strong tissue over the hernial opening. (See Figs. IV. and V.)

5. The skin and fatty tissue were then brought together and the tension sutures tied over all, the wound dreseds

antiseptically with firm pad, roller bandages, etc. (See Fig. VI.)

The wound proved entirely aseptic and the results most satisfactory, she now having been well for nearly three years without any indication of a return of the hernia.

So far as I know this is the only hernia in this region that has been closed by a flap operation, and being a new departure from the established customs, questions concerning its utility and efficacy may very naturally arise

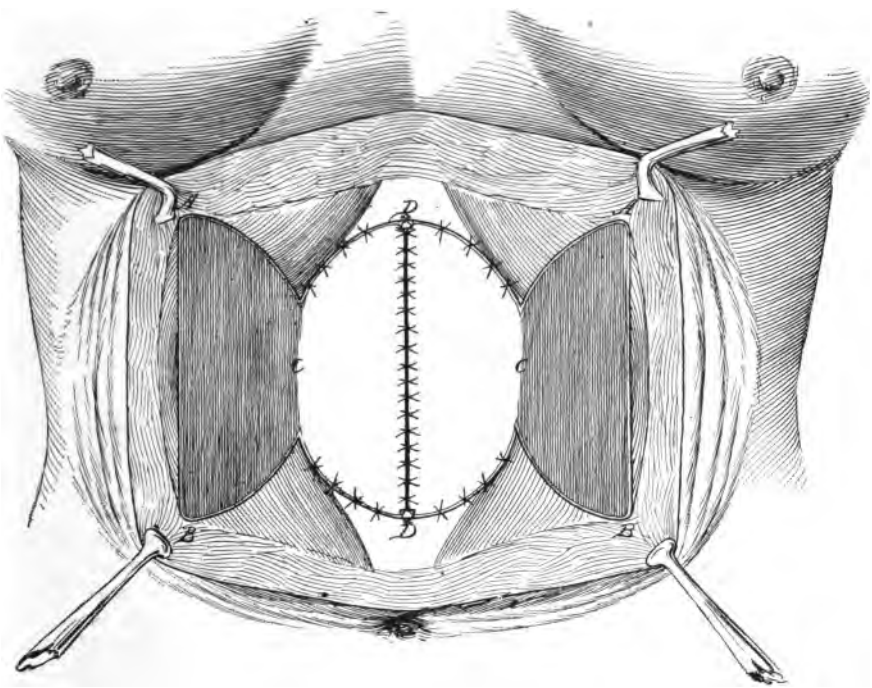

FIG. III.

Anterior view showing hernial opening, *D C D C*, and semi-circular flaps, *A B C*, cut from the anterior sheaths of the recti muscles, and turned over the opening and united in the median line, *D D*. (Cross-section same as Fig. II.) Size of hernial opening, four and a half inches vertically, *D D*, and three and a half inches transversely, *C C*.

Its applicability must be confined to such points as will permit flap-taking without permanent injury to the transversallis fascia, as it must be relied upon to give strength to the abdomen.

As for efficacy the simple fact that the strong flap of fibrous structure and recti muscles relieved of their sheaths and firmly united to each other have proven capable to effectually close a hernial opening equivalent

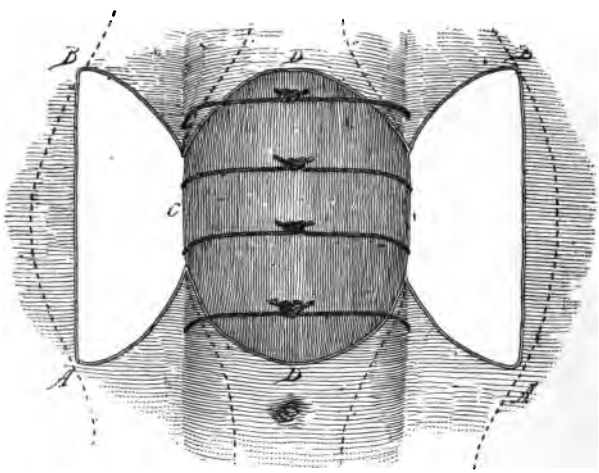

FIG. IV.

Showing recti muscles drawn from their false position (see dotted lines), into which they were forced by the protrusion, and fixed over the hernial opening, *D C D C* (transverse section of same in Fig. V.) The white spaces, *A B C*, represent the posterior sheaths of the recti muscles, showing through the places from which the semilunar flaps were taken.

to about twelve square inches in extent should be sufficient to establish it, so far as the hernia *per se* is concerned.

With reference to the parts from which the flaps were taken, no fears need be entertained regarding the liability of hernia there as they are protected by the transversallis fascia, for in the lower fourth of the abdomen union of this fascia is relied upon to prevent post-operative hernia.

The denuded areas, therefore, have as great strength as that portion of the abdomen just mentioned.

If it should fall to my lot to do another such operation I would make but one modification, that of using buried

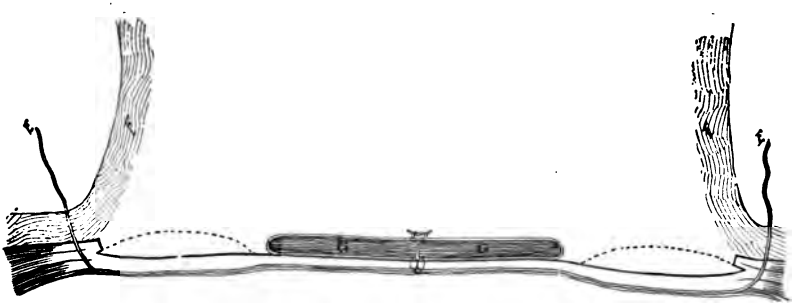

FIG. V.

Same as Fig. II., with recti muscles drawn into apposition and covering the hernial opening, by surrounding them with heavy catgut sutures.

silver sutures instead of absorbable materials. Silver has for nine or ten years had my preference as a suture and I am glad to say that I have never had occasion to regret its use. Besides its value as a permanent suture the exudate that is thrown around the wire organizes into a dense tissue that very materially increases the strength of the parts.

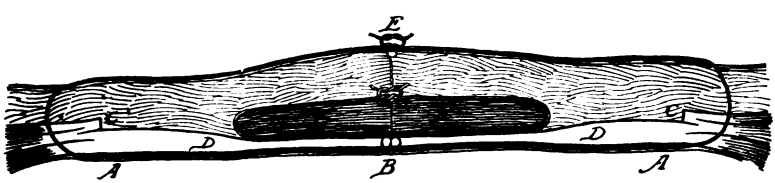

FIG. VI.

Same as Figs. IV., and V., with skin and fatty tissue brought together and tension sutures tied over all.

DISCUSSION ON DR. NOBLE'S PAPER.

Dr. SAMUEL LLOYD, New York : I have been very much interested in the report of this case because of its application, to the median line of the abdomen, of the same mechanical methods which we are trying to adopt in the treatment in inguinal hernia. Flap operations have been extensively carried out, as you all know. Several of the German surgeons have made flaps of the sheath of the rectus over the inguinal canal, and periosteal flaps have been taken from the pubis as a means of overcoming the inguinal hernia. Dr. Noble practically carries this in the median line of closing and opening up a fascial flap. In order to make a firm abdominal wall it is absolutely essential to get solid fascial lines to protect it. We have had complete failure of the McBurney method, and of the other methods, including the Heaton. They have depended upon the protection of the cicatricial tissue. It seems to me that Dr. Noble has solved a mechanical problem. There are one or two points about the operation for ventral hernia that have aided me very materially in my work. I know of no class of abdominal operations that I approach with less confidence than large or ventral hernia. It is exceedingly difficult to decide at the operating-table how to close a gaping wound in the abdomen, and often it is very hard to bring about a close apposition of the walls of a ventral ring. The method suggested by one of the German surgeons of entering a ventral hernia exactly as in operating for any other abdominal trouble is the best I know of. That is, instead of going through the hernial sheath, do a laparotomy at the side of the ring. This is advantageous for the reason that usually the point of firmest adhesions is the neck, and just about the abdominal ring. If we approach these adhesions from the outside, and the hernia is largely omental, we have to break up all of the omental adhesions, in order to make sure that no coils of intestine are involved in the hernial protrusion. If, on the other hand, we do

a laparotomy we are able to get rid of the coils of intestine at once, and can isolate the intestine from omentum. It is then unnecessary to break up the adhesions between the hernial sac and the omentum, but the latter could be tied off, and the adherent omentum and hernial sac both removed at once. This shortens the time of the operation very materially in many of the cases. The suggestion has been made to close a ventral hernia in a transverse position, because it allows of a closer apposition of the recti muscles. It shortens up the anterior abdominal wall slightly, and relieves tension for a time, so that the fascia and sheaths of the recti can be brought together more readily. In some instances where the ring is not too large, it seems to me that this procedure might save the necessity of doing a flap operation, and possibly enable the surgeon to get the two sheaths of the rectus together. For my own part I have been for a long time in the habit of cutting through the sheath of the recti on each side of the abdominal ring, so as to allow of apposition of first, the posterior sheaths, then the recti muscles, and finally the superior sheaths of the recti, thus getting two fascial lines, a muscular layer over the weak point in the abdomen.

I congratulate Dr. Noble on the ingenuity he has displayed in devising this flap operation, and am very thankful to have been here and heard the suggestion, and I shall most certainly use it when the opportunity presents itself.

Dr. NOBLE (closing the discussion): I desire to thank Dr. Lloyd for his very kind remarks and to emphasize one point he mentioned—that is, in reference to entering the abdominal cavity. It unquestionably will save time in the average ventral hernia operation. I have done the work after this method in the lower portion of the abdomen. In this case I could not do it because I had the ensiform cartilage above, and did not want to disturb the umbilicus below or to increase the opening. In the lower

portion of the abdomen where we have ventral hernia, going into the free cavity above or below the mass of adhesions, and separating the intestine, will save nearly fifty per cent. of the operator's time. This is one of the most important points in the *technique* of the whole operation.

THE TREATMENT OF SKIN DISFIGUREMENTS BY ELECTROLYSIS.

BY M. B. HUTCHINS, M. D., ATLANTA.

The subject which I have selected is by no means a new one, but it is one about which not much is generally known. The destruction of various abnormal growths by "electricity" has suffered some degree of bad favor through the performances of our enemies, "the quacks." That electrolysis has a wide application and a legitimate use I am convinced by my own experience during the past five or six years.

A very good definition of electrolysis is given by "The National Medical Dictionary" as, "the electro-chemical decomposition of a substance."

To do the work outlined in this paper, a few galvanic cells, a sponge electrode, a needle-holder, and, for accurate work, a milliampéremeter are necessary; and, to do it properly, some experience.

In most cases the needle should be attached to the negative pole. The current used is weak, usually advised as that from three to seven or eight cells; with a milliampéremeter we find that we get from one half to five milliampéres from these, according to the relative position of the electrodes, a greater amount of intervening tissue reducing the current by resistance, a lesser interval increasing it. Again, the number of needles used, the manner of touching or grasping the sponge electrode, the wetness of the sponge, all influence the strength of the current.

The strength of current used in the majority of these operations is harmless to the patient, in fact, it would not be felt upon an unbroken epidermis. It is intended

to get a decomposing, solvent action in most cases, not an action so intense as to have no advantage over caustics and cauteries. There is not even physical warmth in the needle as used.

While many favor a needle-holder without the spring for opening and closing the circuit, I prefer and have long used the one with this attachment, allowing the patient to keep the wet sponge electrode in the hand, or an assistant to hold it in contact with the patient in operations under anæsthesia. An ordinary steel needle, varying in size to meet the requirements, usually suffices, and it is not necessary to use expensive "special" needles. Proper insulation may be used if needed.

When the circuit is first closed there is a feeling of burning and stinging about the needle, but sensation is benumbed in a few seconds. Charlatans claim to use electrolysis painlessly. They can only do so with the aid of anæsthesia, or with an insufficient current.

Local anæsthetics can only be used on a limited area, and their effect is of short duration. Driving cocaine solution into the follicles by "cataphoresis" might be of use. Chloride of ethyl, for freezing and benumbing the part, is useful. Cocaine solution hypodermically does well for small growths.

General anæsthesia cannot be employed in the daily removal of hairs. In cavernous nævi, "port-wine marks," and other cases which can be finished in an hour or two, or which can be treated at intervals, it is available.

Sometimes, especially where the punctures are very close together, we may get considerable superficial inflammation. A soothing lotion reduces this, however, in a few hours. Scarring cannot occur unless much of the papillary layer, or deeper, is destroyed. I have never produced it where it was undesirable.

A good knowledge of the minute anatomy of the skin and of the disfigurements to be treated is essential to successful work.

Some of the conditions amenable to this treatment are mentioned below.

Hypertrichosis.—For the removal of superfluous hairs, on the face of ladies especially, electrolysis is the only method. Many of the patent hair-removers are excellent stimulants to its growth. So are pulling out, cutting, and shaving. A lounge, good eyes, a good light, a steady hand, and perseverance are necessary to do the work properly. The patient holds the sponge electrode, positive; the needle is attached to the negative pole. If a steel needle is used attached to the positive pole, a black point results from the deposit of the "black oxide of iron." The needle may be very fine for small hairs, larger for coarse ones.

A current of from one half to three milliampéres will be sufficient. Remembering resistance, this can easily be managed.

The needle is passed along the side of the hair to the bottom of the follicle, which can be felt, and the circuit closed. Frothing will occur in most follicles, and the circuit can be opened in from five to thirty seconds. The hair then usually comes out with no resistance to the forceps. If it "pulls," reapply the current through the needle in the follicle. Counting the hairs removed is advisable, in view of a later visit from the patient. Those, the papillæ of which have not been destroyed will return, and fine hairs, too small for removal, may be stimulated to active growth by the irritation in their vicinity. Other fine hairs grow large in the course of time even, I think, until a woman has no more to develop, regardless of age. An hour is usually long enough to work, but I have had to make each operation very much longer in several cases.

It is proper, as Dr. C. W. Allen, of New York, says, to have a thorough understanding with your patient before you begin, both as to returns and new growth. It is also as well to be frank about the pain; better to have them find it less, rather than more than they anticipated. I have had one case from out of town where it was neces-

sary to remove nearly two thousand five hundred hairs from the chin and mylohyoid region in ten days. The patient bore the pain for the result, and there was no scarring—the amount of work still necessary I am not able to report.

Moles.—I have never seen a mole which I thought becoming, and I have never seen an injury result from their treatment. I have removed one by excision, which had become epitheliomatous through a razor cut; there was no recurrence. Moles with the hairs in them will frequently disappear from the simple effect of the current used in destroying the hairs, but destroying the mole does not always destroy the hairs—they are deeper.

The advantages of electrolysis for the destruction of moles and other small disfigurements are, the absence of bleeding, no superstition about "the knife," no wound to dress, and, finally, where the current is not too strong, no scarring. The needle is pushed through the base of the mole, if it is a large, raised one, to the skin opposite. The current produces a tallowy blanching of the mole with some frothing around the needle and sometimes through a hair follicle in line. A transfixion at right angles to the first is then made, and as many others, radially, as required by the size of the growth.

Flat moles are best treated by perpendicular punctures to their depth. A sheaf of many needles will save time, but the extra resistance demands more current. A form of atrophy goes on for some weeks after treatment, more marked at and along the needle punctures. Any elevated, remaining, or level pigmentary points can be removed at later sittings, by the perpendicular application of the needle. In most cases it will require a close search, after the end of the treatment, to discover the site of the mole.

Warts of various kinds, so tedious of treatment with the old method, save that of excision with or without cauterization, usually dissolve into froth under the action of electrolysis, being more easily destroyed than the average mole.

Epithelioma.—Remembering the histology of epithelioma, one just beginning, or a single recurrent point, should yield to this treatment. A case of mine—of the nose, very rebellious—was finally cured by this means.

Small fibromata, milia, sebaceous cysts—in fact, any small growth—can be destroyed by electrolysis.

Keloids and hypertrophic scars are benefited by this measure. Keloid is the chief of recurrers, and excision is usually nullified by regrowth from the cicatrix.

Comedones which are persistent may be gotten rid of by the electrolytic destruction of the gland whose orifice it plugs, the current, besides its special action, acting like an irritant injection. The same action takes place in retention cysts. Brocq, of Paris, has followed the same procedure in oily, rosaceous conditions of the nose. Acne lesions, especially the indurate, afford indications for electrolysis.

Angiokeratoma, a warty condition, with dilated vessels, is most successfully treated by this method.

Dilated cutaneous vessels, whether they occur in rosacea, acne rosacea, about and in scars, or, as a "birthmark," yield to this treatment without noticeable scarring, if any.

The so-called "port-wine marks" require much time for their removal, but perseverance will accomplish it.

The old "nævu araneus" is easily destroyed. In these dilatations of the vessels the needle to the negative pole may be inserted either at right angles or longitudinally to the vessels, or if the dilatation is rounded, larger directly in the center.

Angioma cavernosum of considerable size requires a more powerful current, the needle to the positive pole for better coagulation, the current being changed to negative at last to free the needle. Their treatment is very tedious.

The method has been used to remove freckles and other pigmentations.

I have mentioned many conditions which can best be treated by electrolysis, and have only to say, in concluding, that the paper read is based almost entirely upon my own practical experience, not upon pure theory, and that my faith in the method is due both to its results in practice and upon myself.

ON THE VALUE OF SUBCONJUNCTIVAL INJECTIONS OF MERCURY IN CERTAIN DISEASES OF THE EYE.

BY DUNBAR ROY, A.B., M.D., ATLANTA.

The subject of subconjunctival injections of corrosive sublimate for the benefit and cure of certain inflammatory diseases of the eye has, in the last eighteen months or two years, received considerable attention at the hands of certain ophthalmologists. Every now and then we notice some "new fad," if we may so term it, in every department of medicine, and the domain of ocular diseases and ocular therapeutics has not been entirely free from this invasion. Well do we remember how the question of prescribing low-degree cylinders for the relief of many reflex nervous troubles overshadowed all others for the time being, both in discussion and journalistic harangue! At the last meeting of the American Medical Association the question of muscular equilibrium occupied far more time in the section on ophthalmology than all other subjects. So from time to time we find certain subjects in every specialty claiming far more attention for a short time than all others, being finally either accepted as beneficial to the cause or rejected for want of value. While it is true that the subject of subconjunctival injections has not excited such widespread interest as some other points in ocular therapeutics, yet it is equally true that it is a subject well worthy of attention. This latter statement is made not only from the knowledge of the literature which has been written by those who are its advocates, but also from personal clinical observation and experience. No procedure introduced by a reputable physician for alleviating some diseased portion of the

human economy, should be relegated to the realm of oblivion without thoroughly testing its efficacy to see whether there exists the real value claimed for it by its advocates. The day has long since passed when we may substitute theoretical views for clinical facts, and those physicians who denounce "new innovations" as unscientific and non-therapeutic simply on the ground of a lack of personal clinical experience on their part must be classed with other paleozoic fossils whose sphere of usefulness has long ceased to exist. No physician is in a position to express himself pro or con on any clinical subject unless his views are the expressions of personal clinical observations and experience. Because, theoretically, he does not believe in the efficacy of this or that method, is no reason why he should condemn the same *in toto*.

Before giving my own clinical experience with the use of sublimate injections in certain forms of eye diseases, I wish to give in a succinct form the views of various ophthalmologists who have contributed their experience upon this subject to the ophthalmological literature. Corrosive sublimate as a germicide and antiseptic has held an important place with the medical profession ever since the discussion of the germ origin of disease. As a destroyer of pathogenic organism the bichloride of mercury still retains its supremacy as a universal remedy. In all inflammatory and suppurative processes demonstrable by experimental pathology as dependent upon some micro-organism, we have no better remedy for destroying the virulency of these organisms than by the antiseptic action of some salt of mercury. Inflammatory and suppurative processes in the eye do not differ materially from like processes in other portions of the body. The same micro-organisms which cause gonorrheal urethritis or vaginitis will cause a gonorrheal conjunctivitis, and under the microscope the revelation is the same. Ulcers of the cornea reveal the same cocci, be it the staphylococcus or streptococcus, as ulcerative processes in other portions of the body, while purulent iritis or choroiditis are influenced

by the same micro-organisms as are purulent processes in other portions of the economy. The good operator in the field of ophthalmology should aim at having his field of operation free from all micro-organisms, rather than to have to combat them with antiseptic after they have entered. But it is equally true that after an inflammatory or suppurative process has taken hold upon the eye we must endeavor to mitigate its severity by the use of some germicidal remedy.

The value of mercury in treating ocular diseases having a specific basis, is well known, the only difference in opinion has been as to the method of its application, just as all syphilographers differ on the same question. In syphilitic affections of the eye, I agree fully with Chibret, who said at the last meeting of the Eighth International Ophthalmological Congress: "Mercury alone is always successful; potassium iodide alone, never." [1]

The value of mercury in the treatment of a great many diseases of the eye, when not even dependent upon a syphilitic basis, has long been recognized, so that the value of this salt in subconjunctival injections derives its novelty more from the method of its use than from the remedy itself. No one denies the value of mercury in treating syphilitic affections of the eye. The question which presents itself to me is whether its use by subconjunctival injections is of more value than when used by other methods, as by the mouth, etc.

For this reason, as stated before, I propose to give the opinions of various oculists pro and con, who have given an expression of their views upon this subject. The advocates of this method of treatment hold that it is valuable in both syphilitic and non-syphilitic affections of the eye. It is especially valuable in suppurative inflammation about the eye, as ulcers of the cornea, with or without hypopyon; syphilitic iritis and irido-cyclitis; choroiditis, with opacities of the vitreous, panophthalmitis, etc. The advocates claim that the antiseptic and germicidal effect of the mercury is much more potent when thus localized

near the tissues involved than when introduced into the general circulation. This is certainly rational and is borne out experimentally, just as I have seen far better results obtained by injecting strychnia in the temple for optic nerve atrophy, than when injected at a more remote spot. Whether the medicine reaches the affected portion quicker through the lymphatics at this point I am unable to say, but clinical facts cannot always be explained by theoretical reasoning.

The experiments of Professor Pflüger, of Berne,[2] have demonstrated that "after subconjunctival injections of a bichloride solution, the salt is found in the cornea, aqueous humor, suprachoroidal spaces, vitreous humor and the superficial layers of the lens. The mercuric chloride reaches the tissues of the eye before being taken up by the general circulation." From the results of these experiments it is much more rational to expect a beneficial effect upon any suppurative process of the eye when the mercury is thus brought in close contact than when it has to reach the part through the general circulation. Thus, in a great many cases, I have found that the results in subconjunctival injections have been much quicker and, therefore, more satisfactory than when administered by other methods. Especially in infective and suppurative processes have the subconjunctival injections been found most potent.

According to E. Schulte,[3] it was Professor Raymond, of Turin, and his followers, who first advocated the therapeutic use of subconjunctival sublimate injections—this author having used it for subduing sympathetic inflammation—in that he found the results just as satisfactory and far less dangerous in making the injections beneath the conjunctiva instead of in the vitreous as had been previously done. This method of Professor Raymond did not seem, however, to make very much of an impression upon ophthalmologists at large, and it was not until 1886 that Professor Abadie, of Paris, and especially his pupil, Darier, extended the use of subconjunctival sublimate

injections to a great many other diseases of the eye, that this method began to excite the attention of the ophthalmic profession. Since that time Darier, more than any other ophthalmologist, has continuously urged the value of this method and written numerous articles upon the subject. In the last four years numerous clinical observers from all parts of the country have added their experience until now the subject is by no means new. Before giving my own clinical experiences, I will give those of the different writers who have contributed to the literature of this subject, thus showing in what class of diseases this method has been valuable, and also where it has proven a failure.

Since the method employed by the majority of writers was that of Darier, it will, perhaps, be opportune here to give a succinct account of the method thus employed. His method, as practiced, is to cocainize thoroughly the eye, and then, with a flat needle connected with a syringe, to inject two to five drops of a 1 to 1000 sublimate solution beneath the conjunctiva. The point of injection should not be nearer to the cornea than seven millimetres, and care should be taken not to rupture any blood-vessel. The eye is bandaged up and no injection is made before the second day in order to allow the irritation to subside. According to Darier, if no good result is obtained before the tenth injection it is unnecessary for further attempts.

I will now tabulate the results of the different ophthalmologists:

B. R. Gepner, of Warsaw,[4] in a clinical article, has given the results of his experience, which, in the main, were very favorable. He used Darier's method throughout. He gives the histories of four cases treated by this method.

1. Central corneal ulcer, with hypopyon. One third of the interior chamber filled with pus; severe ciliary pain. Patient had been unsuccessfully treated with atropia, iodoform and hot applications for three weeks. Under injections, in four days the parts have been entirely recovered.

2. Central necrotic ulcer due to traumatism and infection. Anterior chamber filled with pus. In eight days under injections the parts were entirely healed.

3. Case similar to number two.

4. Case of purulent irido-cyclitis, with great tenderness and hypopyon. Most of the symptoms disappeared after the second injection.

Dr. Wm. E. Briggs,[5] of Sacramento, Cal., at the meeting of the American Medical Association at San Francisco two years ago, read a paper and gave his clinical experience with the subconjunctival sublimate injections. In the six cases reported by him the results under this treatment were eminently satisfactory, while the Doctor declared himself as being highly pleased with the method of treatment. The cases tabulated in which the injections were used with success were as follows:

1. Chronic syphilitic iritis.
2. Three cases of choroiditis.
3. One case of opacities of the vitreous.
4. Ulcerating wound of the cornea.

In some of these cases the usual remedies had been used without success, but finally, by combining the two, the results were highly satisfactory. In the discussion which followed, the chairman, Dr. Baker, of Cleveland, said that the method had not commended itself to him and he, therefore, had been slow to adopt it.

Dr. Chas. H. Baker,[6] of Bay City, Mich., has published his experience, which has been such as to make him an enthusiastic advocate of this method. In all of his cases he had most excellent results, which tabulated were as follows:

1. Four cases of interstitial keratitis.
2. Three cases of choroiditis.
3. One case of neuroretinitis.

Gagarin,[7] in an extensive dissertation, gives his own experience in repeated injections of sublimate in the following diseases: Iritis gummosa, plastic iritis with various complications, irido-choroiditis after recurrent fever, dif-

ferent forms of irido-cyclitis and irido-choroiditis, parenchymatous keratitis, corneal ulcer with hypopyon, different injuries with their consequences, episcleritis, absolute glaucoma, disseminate chorio-retinitis, optic neuritis, and trachomatous pannus. He obtained good and rapid results in hypopyon, keratitis, irido-cyclitis, irido-choroiditis. In the various forms of iritis the results were also good. In parenchymatous keratitis and episcleritis no improvement was obtained. In one or two cases of pannus there was considerable clearing up of the cornea in a short time.

Pennon[8] has also given his experience, and, in the main, favorable. The following is a list of the conditions in which he found the subconjunctival injections especially beneficial: In purulent iritis and irido-cyclitis after cataract extraction, in traumatic cyclitis with beginning sympathetic ophthalmia, in choroiditis, chorio-retinitis, and neuro-retinitis, particularly when syphilis was the cause, and in one obstinate case of diffuse opacity of the vitreous. In hypopyon keratitis, parenchymatous keratitis, and in a case of embolism of the central artery of the retina (?) considerable improvement was obtained.

Dr. Siklossy's[9] experience in the treatment of granular pannus by the method of subconjunctival sublimate injections epitomized is as follows: He recommends the use of the subconjunctival injections in conjunctival infections, even though acute. He has used the treatment with success in acute blennorrhea conjunctivitis. It is more particularly in trachoma that these injections seem to produce the best and quickest results, especially if pannus exists, even though the pannus be complicated by ulcerative lesions of abscess of the cornea.

In the majority of cases of pannus the recovery was rapid and after three or four injections at intervals of two days, the vascularization disappeared, the cornea cleared, and the vision returned.

Dr. K. Rumszewicz[10] from his personal experience tabulates in an extensive article the affections in which

he has found this method of treatment the most satisfactory.

1. Cases of accumulation of pus in the anterior chamber, admitting, however, that in certain cases this treatment is ineffective.

2. Cases of infected wounds of the eyeball. Here sublimate acts in a prophylactic and therapeutic manner.

3. Severe and obstinate cases of iritis, especially those with hypopyon.

4. Scleritis.

5. Choroiditis and retinitis of myopia.

Dr. Grossman,[11] of Budapest, speaks highly in praise of subconjunctival injections of mercury, and describes a series of cases in detail which have been treated according to this method. The following are the conditions in which he has used this method with success without complications:

1. Post-operative and traumatic infections.
2. Ulcerative keratitis.
3. Gummatous, granular (?) and rheumatic iritis.
4. Infectious irido-choroiditis.
5. Retro-bulbar and infectious optic neuritis.
6. Optic neuritis of unknown origin.

Dr. Adolph Alt,[12] of St. Louis, has tabulated his experience with the subconjunctival injection of 1 to 1000 sublimate solutions, and speaks of it as follows:

The most successful result was obtained in a case of double recurrent iritis. In severe irido-choroiditis the duration of the disease was considerably shortened by subconjunctival injections of sublimate. Experience has taught him that instead of increasing, injections of sublimate diminish the pain in these cases.

At the meeting of the French Ophthalmological Society in May last, Dr. De Wecker,[13] of Paris, read an instructive paper under the title, "On the Use of Large Subconjunctival Injections."

While it is true that to Prof. Raymond, of Turin, is due the priority of having introduced the method of sublimate

injections in ocular therapeutics, it is equally true that to Prof. Abadie and his pupil, Darier, belong the praise of having popularized it among the ophthalmic profession and brought it prominently to the position which it now occupies. In Paris, perhaps, as much as any other place do we find a laudable feeling of rivalry between the leading men in different specialties of medicine, hence we often notice quite antagonistic discussions coming from the ophthalmological societies of that place.

While Dr. De Wecker recognized the value of subconjunctival injections of mercury, he did not desire to appear as an adherent to the method as used by Dr. Darier, so he departs from the latter by using what he calls "large injections" instead of two to five drops as practiced by Darier. In his article De Wecker holds that it is impossible to obtain any germicidal or antiseptical effects from a few drops of a 1 to 1000 sublimate solution, and, therefore, for such results as one desires he must use larger injections.

Theoretically, and possibly clinically, such may be true, yet it is also true that just as accurate observers as De Wecker have obtained as good results from the small injections as he himself has with the large. De Wecker claims that his results were very poor until he used large injections—one-half a syringe full at a time—and since then the results have been most excellent, until now he uses this method to the exclusion of all others in treating infectious processes of the cornea. As to which is the better method, no ophthalmologist can say until he has tried them both. As for myself, I have only used the small injections, and have been so well pleased with the results thus obtained as not to have tried the other.

Those who oppose this method of subconjunctival sublimate injections claim that the results obtained can not be attributed solely to the sublimate injections, since other treatment, as atropine, hot fomentations, bandage, etc., has been used at the same time. To meet this objec-

tion De Wecker claims that, with the exception of a bandage, no other treatment has been used as adjuvants.

A very interesting article on this subject, embodying also his clinical experience, has been published by Dr. E. Schulte,[14] of Strasburg, and since a translation of this article into English has never been made, I will take the liberty of condensing the views of this author as given in this monograph.

His observations were confined to patients treated in the University Eye Clinic. The *technique* used was that recommended by Abadie. In over one hundred injections no accident occurred, nor unpleasant symptoms followed, with the exception of one case of specific iritis, in which, after the first injection, severe symptoms of irritation occurred. The injections were used in four cases of central choroiditis. In the first case, after five injections, the vision rose from fingers at $\frac{3}{4}$ meter to Snellen $\frac{6}{10}$, macula normal and vitreous clear. In the second and third cases, after three injections vision rose from $\frac{1}{4}$ and $\frac{1}{8}$ meters to 3 meters. In the last case, complicated with a high degree of myopia, there was no change. In six cases of choroiditis disseminata, the results were excellent in two cases, but unchanged in four, two of these latter being also high degrees of myopia. In such cases as the latter, the universal experience seems to be unfavorable.

In six cases of recent opacities of the vitreous, with more or less changes in the choroid, the writer used sublimate injections. In two of the cases there was permanent clearing up of the opacities, and likewise a bettering of the vision. In four cases there was no improvement, in two of which there was a high degree of myopia.

In two cases of chorio-retinitis, one was much improved, and in the other, no change. In none of the above cases was syphilis recognizable. In diseases of the retina and optic nerve, the injections were used to some good purpose. In one case of specific retinitis, after four injections, the vision rose from fingers at 4 meters to Snellen $\frac{5}{6}$ in three weeks

In two cases of optic neuritis, the results were very gratifying. In three cases of keratitis parenchymatosa, in four cases of iritis, and in two cases of kerato-iritis, the author used the same method without especially satisfactory results. In his cases of iritis, the injections were not followed by breaking up of the iritis adhesions, as noted by other authors, especially at Deutschman's Clinic.

In infectious processes in the cornea, the author has not tried this method.

In closing the writer criticises somewhat the results obtained by Marti [15] and Mellinger [16] in their use of subconjunctival salt solution, in infectious corneal processes, because, as he says, other treatment, as atropine, etc., was also simultaneously used.

These last authors claim to have had just as excellent results with the salt as with the sublimate solutions, and with this advantage, that the salt solution was not nearly so irritating.

Dr. Mellinger [17] replies to Dr. Schulte, by saying that in the use of the subconjunctival salt solution in the University Eye Clinic, at Basel, they have had as good results as those who have used the sublimate solutions. In reply he also calls attention to the published results of Darier,[18] Matarangas,[19] Van Moll,[20] Oetken,[21] with the use of sublimate injections, who also used other treatment in conjunction with subconjunctival injections. Mellinger remarks that "subconjunctival injections will and never can be used as the only treatment in affections of the cornea."

At the last meeting of the International Ophthalmological Congress, Darier [22] again called attention to the value of this method of subconjunctival sublimate injections. The indications for this method, as laid down by him, are:

"1. As being the most powerful and most promptly acting antiseptic in traumatic and operative infection, and also in infectious keratitis, with or without hypopyon.

"2. The presence of torpid parenchymatous keratitis

diseases of the choroid and plastic iritis, in case there is no marked venous stasis.

"3. As an antisyphilitic. The principal contraindication consists in a venous stasis of the circumcorneal vessels, as in this case absorption takes place very slowly and the injections produce an irritation which is more violent than dangerous."

In the discussion which followed the reading of this paper, views were expressed, both favorable and unfavorable. Hess, of Leipsic, the first assistant to Professor Sattler's Clinic, a most thorough and conscientious worker in ocular pathology, was unable to see in a single case as a result of his experiments any but the very slightest effect upon the progress or form of ulcerative processes in the cornea.

Deutschman, on the other hand, as a result of a very large experience, experimentally and clinically, was quite an advocate of this method, in that he obtained better results by this method of treatment than by any other, especially in non-specific parenchymatous keratitis, acute iritis, whether of a specific nature or not.

In chorio-retinitis of non-specific character, the results were less favorable, as likewise were affections of the optic nerve. Especially favorable was this method in infectious processes of post-operative character. Dufour, of Lousanne, expressed himself as eminently satisfied with the results which he had clinically obtained by the use of this method, since it had been complete in almost every case.

Gutmann, of Berlin, on the other hand, could not report any but contradictory observations, and in many cases had observed not only no improvement, but an actual deterioration, as was also the experience of Bach, of Wurzburg.

At the last meeting of the Italian Congress of Ophthalmology, Drs. Syrosso and Scalina[23] together gave their clinical experience with this method of treatment, which was as follows:

In corneal ulcers recovery was obtained with a single injection in forty-six cases, with two injections in eight cases; four very severe cases with three injections.

In syphilitic affections of the eye, sympathetic ophthalmia, the method of sublimate injections has proven powerless as a means of prevention and treatment.

Dr. Seggel[24] has reported three very interesting cases of infected processes of the eye treated by this method of sublimate injection.

The *first* was a severe infected keratitis with iritis following a cataract operation. Seven subconjuntival injections of 1 to 1000 sublimate solution was made with most beneficial and lasting results.

The *second* case was that of a soldier who had received a severe blow in the right eye from the gloved hand of a comrade. On the next day the following symptoms were observed: Severe irritation with chemosis. At the lower part of the cornea a perforating wound could be seen, and in this opening a bead of vitreous and some iris tissue was present. A beginning suppurative process of the cornea was noticed. After cleansing the eye thoroughly, the protruding vitreous and iris were removed, and at the same time a subconjunctival sublimate injection was made. In all, five injections were made with the result of entirely healing the eye and getting vision of 42.

The *third* case was one of orbital phlegmon. The same injections were used with a most satisfactory result.

Dr. De Bourgon,[25] as the result of his experience with this method in deep lesions of the eye, complicated with high degrees of myopia, reaches the following conclusion: "When a foreign element is added to pre-existing myopic lesions, the use of subconjunctival injections of sublimate will produce a favorable modification in the morbid process, it may be stated that pathological myopia should only be treated in this way in exceptional cases, and that success is but rarely obtained in practice if subconjunctival injections of sublimate are employed and nothing else."

Having thus brought to date the experience of other ophthalmologists with this method of treatment, I wish now to give my own observation and the results which have been obtained. I shall not weary you with the histories of each individual case, but shall sum up in a concrete form the results of this experience, only mentioning those affections in which this method was used. The material for carrying on these clinical experiments was confined exclusively to my clinics at the Southern Medical College, and in one or two instances to private patients. Since clinical material in our city is largely confined to the negro race, my observations thus obtained and deductions drawn are of especial value, in that it is the first published report of the use of this method among the African race. The experience of other ophthalmologists has been confined entirely to the white race. Two thirds of the inflammatory eye troubles among the negroes which are presented at my clinics are in some way traceable to a specific basis, hence it is but reasonable to expect that a most excellent opportunity would be afforded for testing the efficacy of subconjunctival sublimate injections. Cases of ulcers of the cornea and iritis are almost as common among this race as conjunctival affections, but as a rule yield readily to anti-syphilitic remedies, showing the specific basis in a large majority of cases. In some cases, however, where the ordinary treatment seemed to produce no decided results, a more happy termination could sometimes be brought about by the use of sublimate injections. While in the majority of cases I could not observe any final results more decided than those obtained by the usual methods of treatment, yet those obtained were, as a rule, quicker in their manifestation and certainly more satisfactory, for that reason, with clinical patients. Negroes are a notoriously unclean and unhygienic race, and to leave the cleansing of eyes and the application of collyria to such patients would be tantamount in the majority of cases to no treatment at all. Besides, the medicines are wasted, and this entails

necessarily a large expense upon an outdoor dispensary, which in the long run is no small item. For this reason I have adopted in all severe infected processes of the eye the use of subconjunctival sublimate injections to the exclusion almost of any other method, because I am surer of the results to be obtained, or at least more certain than in prescribing collyria which will probably be wasted or improperly used, and which furthermore is an important item in the expense account.

My method of using is as follows:

The eye is first cleansed with a spray of 1 to 5000 bichloride solution and then thoroughly cocainized. An assistant holds the lids separated or a stop speculum can be used if alone. Usually in corneal affections or in iritis there is so much photophobia that the patient will keep the eyes rigidly turned up beneath the upper lid. In that case, which is eminently satisfactory, the conjunctiva is seized with a delicate pair of tooth forceps about $\frac{1}{8}$ or $\frac{1}{4}$ of an inch from the sclero-corneal junction, and with an ordinary hypodermic syringe some 5 or 8 minims of a 1 to 1000 sublimate solution is injected beneath that membrane. The eye is immediately closed with a compression bandage, which is allowed to remain on until the second day, when, if the irritation has subsided, another injection is made. Only in cases of acute iritis have I noticed much pain attendant upon this little operation. I have not even had patients complain of any severe pain upon the evening following the injection, as has been noticed by some other observers, and brought forward by them as a point against its use. My clinics are held twice weekly, and in the majority of cases I make the injections only on those days and instruct the patient to keep on the bandage during the interim.

In all I have used this method in about twenty-five cases where the results have been closely followed up, while it has been used in many other cases where the patients never returned, and therefore the results could not be ascertained. However, we may surmise that if the

eye had grown worse the patient would doubtless have returned to the clinic.

Tabulated, the affections in which the sublimate injections were used, were as follows:

Ulcers of the cornea	8
Chronic iritis and irido-cyclitis	6
Acute iritis	2
Interstitial keratitis	4
Purulent conjunctivitis	2
Post-operative infection	1
Panophthalmitis	1
Pannus of the cornea	1
Total	25

From the above cases, and others not tabulated, my experience would lead me to the following conclusions:

1. In infected processes of the cornea, ulcers, abscesses, wounds, etc., this method of treatment is quicker and, therefore, more satisfactory for clinical purposes than those usually employed.

2. In acute iritis it does not seem to exert any beneficial influence, but on the other hand produces great pain, while in other cases the pain was rather mitigated.

3. In chronic iritis and irido-cyclitis the pain and congestion are often markedly influenced for the better, but it has no effect whatever upon adhesions of the iris to the lens capsule.

4. In post-operative infections and panophthalmitis it is by far the best method to which we may resort for good results.

5. In pannus of the cornea absolutely no effect was produced one way or the other.

6. With lesions of the choroid and other deeper structures of the eye I have had no experience, but expect to try this method whenever a case presents itself.

In conclusion I would say that one can not tell beforehand what cases will and what will not be benefited by this method of treatment. I have seen some cases where

almost identical symptoms presented themselves, but where the results obtained varied greatly.

I take this to be largely a matter of idiosyncrasy of the patient in his constitutional make-up, for we all know how differently different patients yield to the same treatment.

From my personal experience I would unhesitatingly say that we can not depend exclusively upon the subconjunctival treatment alone, but as an adjuvant it is most excellent, and in some cases produces results far more beneficial than was expected.

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GLAUCOMA IN RELATION TO GENERAL PRACTICE.

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GENTLEMEN:—Glaucoma is to the ophthalmic specialist one of the most interesting of diseases. It is interesting to him because, from the remotest times into which the history of medicine can carry us down to the present day, it has been a subject of difficulty and discussion; because there is probably no other ocular disease, a proper understanding of which has been so dependent upon a clear grasp of true physiological processes within the eye, and whose development has followed so closely upon these; because it is a morbid process of such relentless nature that, once established, if uncombated, it seldom or never relinquishes its deadly progress until the eye, and in the great majority of cases, both eyes, are quite disorganized, and, as if not content with their destruction, it frequently continues to torment its victim with such pain that he urgently calls for removal of the globe.

Glaucoma interests the specialist also because in one of its forms it is sometime very difficult of diagnosis; because frequently so much can be done toward cutting short its course, or even completely saving the health of the eye; and also because it is one of the commonest of dangerous ocular diseases, comprising, according to a high authority, as much as one per cent. of all ophthalmic troubles.

But to give the impression that this interest is necessarily confined to specialists, would be to controvert the very object of this paper, which is a humble attempt to

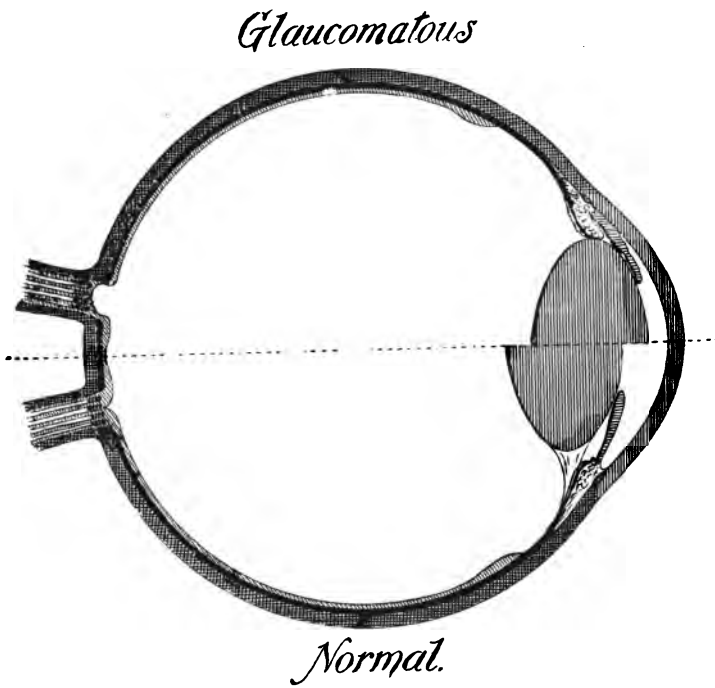
increase an interest already felt, or create one if still unfelt, in the minds of such of the members of this society as may not have given any important degree of their attention to the subject of ophthalmic pathology. While I believe that every case of glaucoma requires the most skillful advice that can be obtained, it is first and foremost a disease which comes within the province of the general practitioner, and with him lies frequently the ultimate safety or destruction of the eye involved. That is undoubtedly the case, because, as in all diseases whose progress is attended by unalterable organic change, the early period, that in which the general practitioner is usually consulted, is the hopeful one for treatment. And that this subject is worthy of being brought up in such general meetings as the present, I am sure most ophthalmologists will agree, for I know that it has been the experience of many others, as it has been mine, to meet with no inconsiderable number of cases of glaucoma in which its peculiar symptoms have led astray both patient and practitioner to such an extent that, in consequence, an eye has been either entirely lost, or, at least, has greatly suffered. And very little need be said in order to show how easy it is to fall into such error, as well as how simple it is to correctly diagnose glaucoma, provided that its possible existence be kept before the mind in the presence of certain symptoms which tend rather to draw the attention from than to the eye.

We will leave out of account for the moment the more chronic forms of the disease, in which, for reasons to be mentioned later, the eye is less likely to be overlooked than in the more acute.

I would here direct your attention to the sketch, which represents half a glaucomatous, placed alongside half a normal eye.

In the eye we have an organ whose sensitive nerve supply constitutes a portion of a nerve trunk which sends branches to a great part of the same side of the head and face, and has close central relationship with other nerves

proceeding to different parts of the body. Given an irritation, of sufficient intensity, of the ocular fibres of the trigeminus, we are very likely to find its action transferred to some or all of the remaining sensory fibres of the nerve, with the result that the pain, originating in re-



ality in an unusalsituation, the interior of the eye, but felt with equal severity in situations much more commonly painful—teeth, forehead, and ear—is referred in all probability by the patient to an attack of toothache, rheumatism, neuralgia, even to erysipelas, or when associated, as not infrequently happens, with vomiting, to migraine or sick headache. Such illusions are still more probable, and the physician himself less likely to correct the patient, when the pain extends still farther and is felt in the region of the shoulder. It would be wearisome to

multiply here examples of those unfortunate cases, but one or two from among those which I have personally encountered will sufficiently serve the purpose.

CASE I.—Mrs. B. came to my clinic at the Post-graduate Hospital, New York, in October, 1894, with the complaint that she had, for the previous six weeks, suffered intensely from what she had been given to understand was neuralgia of the right side of the face and head, and also that the right eye had lost its vision. The eye, on examination, showed ciliary injection, haziness of the cornea, shallowed anterior chamber, dilatation and irregularity of the pupil. The opacity of the media interfered with a satisfactory examination of the fundus. Tension was + 2, and vision equaled only perception of light. Two years previously she had had pain in the head and eye, with blurred vision, probably an abortive glaucomatous attack. Iridectomy was advised.

CASE II.—Mrs. M., age 52. I performed iridectomy upon this patient in a London ophthalmic hospital, after she had been elsewhere treated for some time for rheumatism of the head, the serious condition of the eyes having been overlooked. With her *right eye* she could not even distinguish a hand held close to her face. There was much ciliary congestion, a very hazy cornea, the pupil was dilated, and the anterior chamber was somewhat shallow. The fundus was invisible and the tension + 1. The left eye resembled the right, except that the vision was slightly better, fingers being counted at one meter.

The following illustrates the temporary character of attacks during the premonitory stage, and also the frequent change from the chronic to the acute type:

CASE III.—Mrs. D. W., age 50, sent to me as a private patient, at the New York Post-graduate Hospital, for operation. For six years she had suffered from glaucoma, which was not diagnosed till a few months previous to the time of her operation, November, 1894. For the first four of these years she suffered at intervals, when tired, from pain over both brows and in the eyes, with halo around

the lamp in the evening, which symptoms were cut short by food or rest. At the end of the fourth year these symptoms increased in severity, and twelve months later an oculist prescribed glasses for her. During the last few months she had been using eserine, prescribed by a surgeon who had diagnosed glaucoma, but a week before her arrival at the hospital she had experienced an acute attack in both eyes. My notes at the time of entrance state that in the right eye her vision, with correction, a low *plus* cylinder, equaled half the normal, and the field was small. Recently the tension had come down to normal, and the anterior chamber was shallow, the pupil was contracted by eserine, and the media were so obscured that the iris could not be well seen. The left eye was much congested, the cornea partially opaque, the anterior chamber shallow, the pupil dilated in spite of eserine, the lens partially opaque, some vitreous opacities, the disc pale and glaucomatous cupping well marked. Tension was + 1. Vision equaled fingers at three meters, with correction, also a low *plus* cylinder. Iridectomy was done at this time upon the left eye.

In "simple" or very mild chronic cases a gradual diminution in visual acuity is the main cause of complaint, and attention is not likely to be diverted from the eye as in acute cases. On the other hand error may arise in diagnosis first, on account of this mildness, for in an eye which presents to outward inspection little deviation from the normal, the proper appreciation of the case is not unlikely to be postponed or altogether overlooked (as happened in the third case just quoted), while the usual difficulty is laid at the door of perhaps advancing age, or unsuitable glasses. The truth can be definitely established only by ophthalmoscopic examination, into the particulars of which it would be without the scope of this paper to enter. From the most insidious and quietest, with little or no sign of inflammation, and taking perhaps years to develop, there is an unbroken chain of connecting cases, extending to the most sudden and severe form,

attended by excruciating pain and producing blindness in a time limited to hours or even less.

From the point of the non-specialist, though the chronic form should also be borne in mind, the typical symptoms of glaucoma for which he should be on the outlook are chiefly, besides impaired vision, pain in the eye, head, and face; halos or rainbows seen by the patient round artificial lights; a variable amount of congestion of the eye, and of haziness of the cornea; a diminution in the distance between the cornea and the iris as compared with the healthy eye; an enlarged pupil comparatively irresponsive to the stimulus of light, and in which may often be observed the greenish coloration, not however, peculiar to glaucoma, but from which the disease originally took its name; and, most important of all, a heightened tension of the globe felt when it is palpated as for an abscess through the upper lid, between a finger of either hand, the patient looking down, and distinct in direct ratio to the acuity of the attack. A difference in the tension of the eyes of any individual is always pathological. It is measured by Bowman's signs + or — 1, 2, or 3, according to the augmented hardness or softness of the eye. To this last symptom I should like to direct special attention, and urge that every medical man should make himself familiar—a simple matter—with normal tension, in order to appreciate abnormal tension.

It would take too long and would be out of place to discuss in this paper with any degree of fullness what has been written in explanation of the relationship between the high tension of glaucoma and the other symptoms. Let it suffice here to say that it is the belief most generally accepted, and to my mind on the best of grounds, that, even in chronic cases in which it is sometimes hard to distinguish any increase of intraocular pressure, the latter is yet the *fons et origo* of all that makes glaucoma, and in its absence it is highly improbable that the complete picture of glaucoma is ever attained.

I hope I may be excused if I take the liberty of briefly reminding you of the salient features of the ocular lymph circulation, without a knowledge of which it would be hopeless to expect to understand the pathology of this disease, than which there is no other more striking and visible example of physiology gone wrong.

The eye might be said to consist of a principal and three subordinate systems; the first—for which the others exist—the nervous apparatus prepared for the reception of light and the conduction of the resulting impressions to the brain; the second, which can to a considerable extent be dispensed with when artificial aid is substituted—a partially mobile focusing arrangement; the third, to nourish; and the fourth, to protect the whole.

The first is the sensitive tentacle thrust from the anterior surface of the brain, and round which is gradually built up the remainder of the eye, on whose interior this nervous process is spread out fine as the complicated structure of the retina or innermost of the three layers which together compose the outer framework of the globe.

The cornea, or anterior transparent part of the eye, and the lens together make up the second system. The lens lies just behind the iris and a little posterior to the level of the corneo-scleral junction. In early fœtal life it is spherical and fills the whole interior of the globe to whose circumference it is slung by the suspensory ligament. As the walls of the eye expand more rapidly than does the lens, the latter is compressed by the dragging of the ligament until it ultimately assumes its well-known form. But it does this under compulsion, for upon the slightest slackening of the ligament, and just in proportion to that, due to the action of the accommodation or ciliary muscle, it tends to assume its original form and the refraction of the eye becomes, *pari passu*, accordingly increased.

Although the iris falls anatomically within the nourishing system, physiologically it has little connection with

it, and is useful mainly as a movable curtain to reflexly regulate the supply of light to the retina.

The third, or nourishing system, is the continuation backward of the iris between the retina and the external membrane or sclerotic, in the form of ciliary body for a few millimeters, and then of the choroid. Both of these are, for the most part, composed of blood-vessels, the capillaries lying next the retina.

Protection is afforded to all by the density and toughness of the sclerotic, of which the cornea is a modification, and in this connection, also a part, while from within, the proper shape and tension of the globe are maintained by the presence of the aqueous in front of the lens, and the more gelatinous vitreous behind it.

This brings us to the connecting link between physiology and the pathology of glaucoma. It is evident that just a certain quantity of fluid—no more and no less—will suffice to keep the tension normal; too little, and the eye will tend to become soft, wrinkled, and collapsed; too much, and the delicate structure of its interior will be stretched, compressed, and injured.

A few words must be said concerning this occasional variability in tension. It is in the ciliary region that the fluid enters the vitreous, brought there by the blood in the ciliary arteries, which is returned along with that to the iris and choroid almost entirely by veins which converge to some five main channels called vortex veins, which pass obliquely backward through the sclerotic, a little behind the equator. This lymph, circulating in part slowly through the vitreous, passes in the main around the lens, through the meshwork of its suspensory ligament between the lens and iris, into the angle of the anterior chamber, which it leaves by filtration into a canal running throughout the circle of the cornea, and anastomosing with veins by which it is carried directly from the eye near the corneo-scleral junction. A little fluid also leaves in the region of the optic nerve.

In considering the question of intraocular pressure it is at once evident that an excess of fluid may exist within the eye because too much has entered it, because too little has left it, or from a combination of these causes. Mackenzie, of Glasgow, was the first to observe increase of tension, and in 1830, he showed its connection with glaucoma in his famous work on diseases of the eye. He thought the tension was due to a choroiditis, from which fluid was exuded into the vitreous; and he is to be excused for his error, because at that time the ophthalmoscope was still unthought of, and because it is one shared in even now in certain quarters. Von Graefe, who did so much for the cure of the disease, but never could tell how his operation acted, held that, in all probability, there existed an exudation resulting from what he called a "serous choroiditis," because he never could discover with the ophthalmoscope sufficient evidence of true ordinary choroiditis, or of any other likely cause for the condition. Donders, stimulated thereto by the then novel researches of others in connection with secretion from glands, considered the supposed exudation to be due to a neurosis causing dilatation of choroidal vessels.

All these theories may now be set aside, because we know that an excessive exudation *alone* can have only temporary effect upon the tension, and for the following reason: If the amount of fluid be reduced below the normal, the resulting loss of pressure on the choroidal vessels encourages their dilatation and an excessive exudation of fluid through their walls, while, for like reason, less fluid leaves the eye, till the normal is again reached.

In the same automatic manner an excess of vitreous fluid compresses the choroidal vessels and causes abnormal rapidity of filtration from the corneo-iritic angle till the advent of the ordinary tension. It is only, therefore, when combined with retention, that excessive secretion can permanently heighten the pressure, while retention alone is sufficient. But simple as it may appear at the first glance, the explanation of the true origin of this retention

has been one of the most debated of ophthalmic questions. Theory is easy, but must be reconciled with clinical ex-experience and pathological anatomy. Theoretically, fluid may be retained by abnormality in the region of the optic nerve, of the vortex veins, or of the corneo-iritic angle. In a mere survey like this the optic nerve route may be left out of account, because, however interesting as a possible focus for the glaucomatous process, the arguments advanced in favor of it as the true one sadly lack that basis of observed fact upon which alone one can safely build. The vortex veins present an excellent opportunity for theory, which has not been forgotten. Any interference with their lumen would, of necessity, result in some degree of stasis and swelling in the choroid, with possibilities of such other secondary abnormalities as open up a tempting field for theorizing, of which several excellent ophthalmologists have taken full advantage. Birnbacher and Czermak, for example, have described a few cases in which peri- and endo-phlebitis have been observed in excised glaucomatous eyes. I published,* some years ago, a criticism of these, along with an account of the condition of the vortex veins of twenty eyes excised for primary glaucoma, and I shall go no further into the matter here than to say that in only three of them were the veins abnormal, and in none of these was there any condition which appeared likely to have resulted in glaucoma. Priestley Smith came to a similar conclusion in connection with thirteen eyes which he examined with a like object. One can therefore conclude with a considerable degree of certainty, that imflammatory changes in the vortex veins, if they have any connection with glaucoma, result from, rather than produce it.

There remains now only the corneo-iritic angle, and here we meet with conditions always present in glaucoma, except in rare cases which are susceptible of explanation. Upon these changes, and chiefly through the labors of

*"An Inquiry into the Conditions of the Vortex Veins in Primary Glaucoma." Royal London (Moorfield's) Ophthalmic Hospital Reports, vol. xiii., part 4, 1893, p. 419.

Knies, Weber, and Priestley Smith, an excellent theory has been built up capable of explaining the various symptoms of the disease as well as the effects of treatment. The first step towards this solution was the observation that the filtration area of the corneo-iritic angle is generally blocked in more or less of its circumference by peripheral apposition or adhesion of the iris and cornea, due, according to Knies, to inflammatory exudation in that region, and, according to Weber, to swelling of the ciliary processes which push the iris up against the cornea. Weber's idea seems to have a better foundation than that of Knies, and almost certainly explains a certain number of cases. Priestley Smith, by an exhaustive series of laborious experiments, greatly modified the whole theory in that he placed the initial obstruction, not at the corneo-iritic angle itself, but in the peri-lenticular space. He proved that the lens, an epiblastic structure, peculiar in being shut off from communication with the outer world, grows by the superposition of layer upon layer from the outside, none of which can be cast off, as happens, for instance, in the skin, the lens, therefore, continuing to increase in size and weight throughout life, so that at sixty-five it is one third greater in volume and in weight than at twenty-five. He has also shown that glaucoma is more common in small eyes than in large, and that small size of the globe by no means implies a proportionately small size of the lens. Advanced age then, as we all know, and smallness of the eye are separately predisposing causes of glaucoma, and in the large majority of cases these are found combined. This is explained by the fact that in these cases the normal peri-lenticular space is trespassed upon from the one side by the lens, the result of age, and from the other by the ciliary processes, the result of the meager diameter of the globe. Slight congestion in the ciliary region, such as might result from ill health, tiredness, strain, etc., which, as a matter of fact, so often precede glaucoma and which, in better circumstances, would probably pass away without evil

result, might, in such an eye as that described, by approximating lens and ciliary processes, block the perilenticular space, and shut up the fluid behind it, where an accumulation will take place, producing the visible anterior displacement of lens and iris, so nearly universal in glaucoma. This initial apposition of iris and cornea may set up after a varying time an inflammatory adhesion between them, which interferes with the at one time possible return of the iris to its normal position.

This is a rough outline merely of the more important of numerous theories of glaucoma etiology, sufficient to indicate in what direction one now looks for an explanation of its peculiar symptoms, and I trust not altogether uninteresting even to him whose work does not lie in that direction. But at the same time that the above theory is probably applicable to most cases of the ordinary senile form, it should be carefully borne in mind that glaucomatous destruction will result from increase of tension, however produced, and that there are various other means by which the iritic angle may be closed, as for example in certain secondary cases, and in that interesting disease, the glaucoma of childhood, which there is not time here to discuss.

It will occupy only a moment to consider how fully an increase of intraocular pressure can account for all the symptoms. Pressure on the sensory nerves of the eye and transference of the sensation to other branches of the same nerve or to other nerves, cause the pain in the eye and elsewhere. Pressure produces the halos or rainbows through œdema of the cornea, the result of interference with circulation, which corneal haze, along with the effects of pressure on the main trunk of the optic nerve as well as on the nervous and vascular structure of the retina and choroid, account for the diminished visual acuity. Acting on the vortex veins in their oblique passage through the ocular walls, the pressure produces the pink zone of enlarged, vicariously employed, vessels, seen around the cornea. We have noticed how the anterior

chamber is shallowed, an explanation which holds good also for the large and more or less immobile pupil, while of the internal changes in the eye, the only one which need be mentioned here is the well-known glaucomatous cupping of the optic disc, the weakest part of its walls, and that which first or alone gives way and yields outwards before the pressure, from which ultimately results a true and incurable atrophy of the nervous filaments. The time varies immensely between the onset of the premonitory—and usually at first, temporary—symptoms, and the advent of visible organic change, but during this interval is *the* time to treat glaucoma, as it is *the* time to treat any other disease, and as no attack, however slight, leaves the eye as healthy as it found it, treatment can rarely be begun quite soon enough. It is luckily frequently the case that premonitory, slight and very temporary attacks warn the patient sometimes, at intervals, even for years, of his impending danger, and if he or his medical attendant is wise enough to take these seriously the eye will have a prospect of continued utility little impaired in comparison with what is likely to result from ill-advised procrastination. I need only refer to the remarkable results which have been achieved by operative measures for the cure of this disease—results which are limited only by the previous disorganization of the eye. But as regards treatment, my main desire is to throw out a warning against the indiscriminate use of mydriatics, especially atropine and cocaine, in affections of the eye. Glaucoma has often resulted from the use of belladonna, and is almost always accentuated by it; in most ocular diseases it is harmful, and the non-specialist would do well to cut this drug from his list in ophthalmic practice, except when convinced that he is dealing with an uncomplicated keratitis or an inflammation of the iris. On the other hand he has in myotics, and notably in eserine and pilocarpine, a fairly certain means of temporarily benefiting many cases of glaucoma, and so of saving valu-

able time till the most suitable method of treatment can be decided on. In connection with this subject, I can not perhaps do better in conclusion than say a word which may help to indicate how one can distinguish glaucoma from certain other affections *within* the eye with which it is sometimes confounded, as I have already referred to the frequency with which it is mistaken for diseases *without* the eye.

The injection of the white of the eye in ordinary uncomplicated conjunctivitis is limited to the conjunctiva, and the engorged vessels move along with that membrane when it is rubbed over the sclerotic. The pupil also is unaffected.

The glaucomatous corneal haze might on a hurried examination be mistaken for superficial or interstitial keratitis, but, besides the real corneal difference, the normal tension and condition of the pupil which is apt to be contracted in keratitis, should be sufficient guides.

In iritis there may be slight increase of tension, but the pupil is contracted, and the iris tissues are changed in color and in texture, while the anterior chamber retains its normal depth. Evidences of adhesion between the lens capsule and iris on dilatation of the pupil will confirm the diagnosis. In one form of irido-cyclitis, with deep anterior chamber and deposit on the back of the cornea, there is fairly well marked increase of tension, but this is really a form of secondary glaucoma, requiring active treatment special to itself, into which I need not enter here.

Although in the olden days cataract was frequently confounded with glaucoma, there is no reason why it should be now that we know these to be essentially separate diseases. For the diagnosis of cataract one requires merely to observe the opacity in the lens, but it should be borne in mind that glaucoma may supervene in a cataractous eye; that primary cataract may happen to attack a glaucomatous eye, while secondary cataract is a very ordinary result of the long standing presence of glaucoma. It will be out

of place and will take too long to discuss the difficulties attending the differential diagnosis between some chronic cases of glaucoma and optic atrophy, a subject attended by much difficulty, and concerning which there is great divergence of opinion. There is the less reason for such discussion in a paper which merely skims the surface of this subject, inasmuch as in these there is little likelihood that attention will be diverted from the eye or the serious nature of the case lost sight of.

My object in this paper has been to present to you merely an outline of an important disease in such a form as to make it neither useless nor uninteresting, and my chief difficulty has been to avoid on the one hand leaving out important points, and on the other repeating what every one already knows. For mistakes in both directions I request your kind indulgence.

DISCUSSION ON DR. STIRLING'S PAPER

Dr. A. W. CALHOUN, Atlanta: Personally, I thank Dr. Stirling for his interesting paper. His intention, I judge from his preliminary remarks, is to bring the subject of glaucoma before the general practitioners, and I do not know of any ocular disease that ultimately results in blindness that the general practitioner ought to know more about, and about which he knows so little. Most of the cases that fall into the hands of the specialist, and have been in the hands of the general practitioner for any length of time, are blind simply because he has not appreciated the importance of prompt action and advice. If the general practitioner would learn a few of the symptoms as Dr. Stirling has pointed out in his paper, it would aid him a great deal. He should learn the normal tension of the eye, and that whenever it becomes increased there is something wrong; and if he cannot give the case the attention it requires, he should send the case to a specialist. It is increased tension that causes blindness.

Another thing the general practitioner is apt to do, and

he does it very frequently. Cases of glaucoma are usually painful, and the general practitioner is under the impression that he is dealing with cases of iritis, and neuralgia, which usually accompanies the bad forms of iritis. Being under the impression that it is iritis, he prescribes atropine. As a matter of fact, it should not be prescribed. If a patient is just on the border-line of an attack of glaucoma, and the use of atropine is carried out, the practitioner precipitates a case of glaucoma, and blindness will in all probability follow. After a patient is once blind, except in acute cases, he is permanently so. If the general practitioner could be taught that in glaucoma when a patient is blind he is permanently blind, and the sooner an operation is performed the better, a great step in advance will have been made. The general practitioner gives very little attention to these diseases, and as a result we see a large number of cases of glaucoma that are irretrievably blind.

Dr. J. M. HULL, Augusta: There is no question regarding the fact that the Doctor's paper was a timely one, and that Dr. Calhoun's remarks regarding the general practitioner cannot be amplified very much by any of us. Glaucoma, unfortunately, is of very frequent occurrence, and, as Dr. Calhoun has said, all cases fall into the hands of the general practitioner prior to the time they reach the specialist, and that the general practitioner mistakes an attack of glaucoma for something else, is lamentably true. There are some premonitory symptoms which can be readily recognized and have been thoroughly established. The very evidence of there being a lancinating pain coming on very frequently at night in the eye, and radiating from it oftentimes to the face and head, and attended so often by nausea, which is not to be explained as a rule upon the simple assertion that the patient is suffering from an attack of neuralgia, should fasten our attention upon the fact that the patient has a lesion which is somewhat obscure, and if the general practitioner is unable to

make a diagnosis in such a case the patient should be referred to an oculist in order to receive proper attention and treatment.

The Doctor referred to a method of recognition of glaucoma which is absolutely at variance with the condition of affairs generally as being found in cases of neuralgia, and that is, a uniformly dilated pupil. It is not an infrequent thing that glaucoma is to be found in one eye instead of both, and, therefore, a comparison of the two eyes is easily made. It will be found that in the glaucomatous eye you have got a materially enlarged pupil, whereas in the other eye, if it is not contracted, it remains, at any rate, somewhat smaller than is to be found in the pupil which is affected. Where both eyes are affected it is easy of recognition. As a further cause suggesting symptoms, the age of the patient should be considered. Glaucoma in young persons is one of the rarest affections with which the oculist has to contend. It is so rarely found in the young that it might almost be regarded, except in certain cases, as not to be looked for. It is a condition of advancing life. The pains and suffering occur in persons who have passed the meridian of life, or have reached it, at any rate, and when the condition of glaucoma is suspected, a careful examination of the eye should be made.

The causes which produce the disease are invariably found in inflammations of the globe, which cause an excess of secretion. The actual condition of affairs is this: We have the little canal of Schlemm, from which the secretions of the globe make their escape, and they can be easily blocked by the posterior surface of the angle. I believe that a glaucomatous eye should be operated on. The brunt of the attack falls on the optic nerve, the sclera and cornea being the external envelope and absolutely unyielding in tissue, hard and resisting; the parts cannot give way and allow accumulation of secretion within the eye, so that we must have the optic nerve, which is the weakest portion, pressed upon,

and thereby blindness is induced. The relief of glaucoma is a very great point. It is a matter of certainty that glaucomatous eyes have been treated by the general practitioner with atropine. The exceptions are few where a man has suffered and his case turned over to the oculist, that the oculist does not find the tension of the eye greatly augmented, and the chances are that the case has been mistaken for one of iritis. General practitioners believe when they have these cases to contend with that they are cases of iritis. There is one single condition by which we can distinguish between the two diseases: By observation the practitioner can notice it in the condition of the pupil itself. We have the contracted pupil in cases of iritis, it matters not how slight the disease may be. If the hyperæmia has just begun, there is a shoving forward of the iris itself, and the pupil is necessarily contracted thereby, whereas, in cases of glaucoma the reverse always obtains.

Therefore an error in diagnosis seems to be almost inexcusable, and the practitioner should be very careful how he makes his diagnosis. These are the only points I desire to call attention to, and as the general practitioner is usually the first one that is consulted, he can make his diagnosis in the beginning and then refer the patient to an oculist for treatment.

Dr. STIRLING (closing the discussion): In the first place, I desire to thank the Association for the manner in which my paper has been received.

Glaucoma is so common, comprising as much as one per cent. of all diseases of the eye, according to a very eminent German ophthalmic surgeon, and so dangerous to the health of the eye, while its diagnosis so frequently can be made with ease, on account of the raised tension and other symptoms, that on writing this paper I nearly advocated that it should be made a subject of compulsory examination with every student before receiving his degree.

PUERPERAL ECLAMPSIA AS A RESULT OF ALBUMINURIA IN THE PARTURIENT STATE.

A. A. SMITH, M. D., HAWKINSVILLE.

In the consideration of this subject it is not my purpose to advance any new theories as to its cause or treatment. The frequency with which we come in contact with puerperal convulsions and the exceeding mortality as a result, requires the closest and most careful attention of every physician.

Under ordinary circumstances the presence of albumin in the urine is regarded as a symptom of serious organic disease, and experience shows that we have good reasons to look forward in anticipation of serious trouble in the future. There are other conditions, however, in which albumin is found in the urine during the pregnant and parturient state—in fact, according to the observations of a number of eminent authors, it is found to a greater or less extent in more than twenty per cent. of all pregnant women, at some period during gestation. Again, we find it, temporarily, to a limited extent, as the result of certain articles of diet.

These latter conditions are not attended with any serious impairment of health, and, therefore, may not be regarded as symptomatic of any serious organic trouble.

The knowledge of the fact that these temporary conditions do exist in a number of cases without any lesions of the kidneys will cause us oftimes to overlook the more serious forms of the trouble.

The existence of puerperal albuminuria is, as a rule, recognized only during the last months of pregnancy. It by no means follows, however, that this marks the period at which it first manifests itself in the urine. On the

contrary, we may be certain that its recognition is often deferred to that period simply because the symptoms have not been such as to attract any particular attention. My experience and observation therefore lead me to the conclusion, that while in the greater number of instances we find the existence of the premonitory symptoms, viz.: headache, dimness of vision, excessive œdema of the extremities, yet we find the occasional occurrence of a case, when if these symptoms were present at all, they were so slight that they were passed by unnoticed.

In view of this fact, therefore, it is of the highest importance that each subject should be investigated at least once or twice a month for three months prior to the expected accouchement. Especially is this important if there should exist any premonitions of impending danger.

As to the cause which produces this abnormal change in the constituents of the urine, whether from the pressure of a gravid uterus, or from a reflex irritation of the kidneys, no attempt will be made to discuss now. The failure to eliminate the urea, owing to the disordered functions of the kidneys, and the blood thereby becoming poisoned with this effete matter, may be termed the predisposing causes. Other causes which have a direct effect in producing the paroxysm, and which may be designated as exciting causes, are the tension and excitability of the whole nervous system, together with the pain during labor.

The symptoms as I have said of the milder forms of the affection are either such as to attract no attention, or are simply looked upon as those which naturally arise during the pregnant state.

When, however, the dropsical effusion takes place, the swelling becoming general in the upper as well as lower limbs, our suspicion should become aroused and a careful investigation made, when the presence of the abnormal constituent (albumin) will be found in the urine. In the severer forms we find the extremities enormously swollen, a peculiar pallor of the face, wax-like color of the skin,

and scanty secretion of urine; in fact, a condition of general anasarca.

These symptoms, together with others of lesser importance, mark the course of the more serious forms of albuminuria, and should therefore serve us as a note of warning of the almost inevitable danger. Thus we have this condition existing in varying intensity, the milder forms not of sufficient importance to attract the attention of the subject.

The health not being materially impaired, the symptoms, which are slight in character at first, are regarded as those naturally occurring in the ordinary course of pregnancy. Therefore, according to these observations. which have been made from an experience of twenty years, the following conclusions have been made, viz.: That in proportion to the quantity of albumin and the duration of its presence in the urine, just to the same extent will the poisonous effects upon the blood manifest itself in producing this condition, with its attendant train of symptoms; and in the same ratio will the health and life of the subject be placed in jeopardy.

Seeing the great mortality resulting from this disease, both maternal and fœtal, and when we consider the fact that two lives are involved, thereby doubling our responsibility, it behooves us to watch closely and investigate each individual case coming under our care.

Puerperal albuminuria not unlike all other maladies which we are called upon to treat, can be more effectually arrested or controlled when taken in its incipiency. In reference to the question of treatment it is obvious that it must be of the greatest importance that the presence of albumin should be detected as early as possible after it has made its appearance in the urine. More especially is it of importance to be possessed of this information in order that we may adopt such measures as may remove, or at least mitigate, the symptoms before the period of labor arrives, at which time our experience and observation teach us to look forward with dread and apprehension

to the convulsions and other alarming conditions which result from uræmic poisoning. In all cases when the symptoms, however slight, indicate even a remote possibility of albuminuria, it is necessary to make a test of the urine for albumin. The presence of this poisonous element if slight and unaccompanied by any impaired condition of health requires little or no treatment. In the event, however, that albumin is found in large quantities, and the consequent poisonous effects upon the blood in producing anæmia, dimness of vision, excessive œdema of the extremities, etc.,—these being the conditions indicating the more serious and malignant forms of this trouble—no time should be lost in these indications. Regarding the subject of treatment, our object should be to conduct the patient through to the successful termination of the pregnancy. For the accomplishment of this purpose, I know of nothing better than the use of diuretics and tonics. Of the latter the various preparations of iron seems to best subserve the purpose. Tonics however, are only indicated when there are evidences of anæmia such as have already been referred to. We sometimes meet with a subject, when the symptoms are urgent, such as violent headache, in which bloodletting is beneficial. This, however, affords only temporary relief in reducing the blood supply to the brain, and should be resorted to only in exceptional cases. When the case has advanced to that point where convulsions have already occurred, morphine, hypodermically, with chloral hydrate should be administered.

As already stated in the beginning of this paper nothing new is advanced either as to the pathological conditions or the treatment. The main purpose is to urge the importance of carefully guarding our patients along this line, and I feel assured in so doing the mortality can be greatly reduced. The fact, as I have already said, of two lives in our hands should be a sufficient reason why we give these cases the closest of attention. Certainly we should do nothing less.

A REPORT OF TWO CASES OF REFRACTION AND ONE OF EAR-COUGH.

BY T. E. MITCHELL, M. D., COLUMBUS.

Soon after I began the practice of ophthalmology I was thoroughly convinced that the ciliary muscle should be in a state of complete relaxation in all cases of refraction except in high degrees of myopia, in persons beyond forty-five or fifty years of age, and in those few individuals with a glaucomatous tendency.

In order to measure accurately the amount of refractive error in any given case, except those excluded above, it is necessary that the muscle of accommodation be at rest. No one, I presume, will question this.

An emmetropic eye sees objects acutely at twenty feet and beyond only when the ciliary muscle is in a state of rest. Not so with the hyperopic eye, which has a perfect image at this distance only when the accommodating muscle is in a state of contraction. Place a hyperopic person at twenty feet from Snellen's test type and vision will frequently be twenty fifteenths or better, while at the same time he will refuse any sort of a *plus* lens, save possibly one that corrects only a small part of his focal error. Indeed, he will often accept a *minus* lens, and this is more often true in simple hyperopic astigmatism, as was found in the two cases I report to-day. A person who sees acutely only when the eye is in a state of accommodation—and this is true of all hypermetropes during their entire waking hours—finds it almost impossible to relax his ciliary muscle immediately on looking through lenses which correct the focal error. For this reason one can not measure more than the *manifest* hypermetropia, which may or may not be the full amount. It is true we do

not always wish to *prescribe* a full correction, as, for instance, in exophoric cases only a part, or none at all, of the hypermetropia should be corrected while this type of heterophoria is present. But certainly we can give a partial correction more intelligently when we know the exact amount of focal error.

The two cases which I report to-day are representative of a large per cent. of the refractive work of every ophthalmologist and are, in my opinion, a strong argument in favor of a mydriatic, notwithstanding a growing popularity among certain operators of prescribing lenses without it.

CASE I.—In the early part of December 1894, Mr. J. D., *æt.* 36, came for consultation as regards his eyes, which had been giving him considerable inconvenience for some while. He gave a history of asthenopia covering a period of several years, accompanied by more or less inflammation, but only recently had these symptoms been severe enough to prompt him to seek the advice of a physician.

Three or four years previous to his coming under my observation an ophthalmologist of some note in an adjoining city had prescribed lenses which corrected (?) an astigmatic error of 1.50 D. in each eye, giving—1.50 D cyl. ax. at 180°, with which O. D. V.$=\frac{18}{XII}$ and O. S. V.$=\frac{18}{XII}$. He was wearing these lenses when I was consulted, and, because his vision was quite acute he had not suspected that they were not correct, but thought his suffering was due to "granulated lids." An examination disclosed a chronic marginal blepharitis and a conjunctivitis with an apparent myopic astigmatism.

After inquiring whether the doctor used a mydriatic when he refracted him and being told that he did not, I suspended his accommodation fully, using a one per cent aqueous solution of the sulphate of atropia, and found that O. D. V.$=\frac{18}{XII}$ w+1.50 D. cyl. ax. at 90° and O. S. V. $=\frac{18}{XII}$ w+1.50 D. cyl. ax. at 90°.

I advised the use of the plus cylinders, but, when the mydriatic had been withdrawn and the cycloplegia was

no more, the ciliary muscle again lapsed into a state of tonic contraction, thus converting a hyperopic astigmatism into a myopic one of equal degree, and, with this condition of things vision was reduced with the plus cylinders to $\frac{18}{XXX}$, which was immediately increased to $\frac{18}{XII}$ when these were replaced by the minus ones he had been wearing. Having anticipated this immediate effect of the change I managed to retain the confidence of my patient until a few weeks of unsatisfactory use of the plus cylinders and a partial mydriasis induced the ciliary muscle to assume a state of relaxation when distant vision was desired. With this state of affairs comfort came to and remained with my patient, very much to his satisfaction. The marginal blepharitis, which no doubt had its etiological factor in the long existing "eye strain," readily yielded to daily cleansing with peroxide of hydrogen followed by the application of Pagenstecher's ointment (Hydrg. oxid. flav. gr. i. ad. Petrolatum ʒi.).

CASE II.—Miss L. F., *æt.* 25, came in January of this year with the usual symptoms of "eye strain." She objected to the mydriatic, but consented to have it used in the event lenses fitted without it were not satisfactory. No plus cylinder at 90° would be accepted, but I readily found O. D. V.$=\frac{18}{XV}$ w—75 cyl. ax. at 180° and O. S. V.$=\frac{18}{XV}$ w —1.00 cyl. ax. at 180°. Accordingly these lenses were prescribed and worn for some time, but the symptoms were no less tolerable than before, consequently the accommodating muscle was placed in a state of forced relaxation when O. D. V.$=\frac{18}{XV}$ w+75 cyl. ax. at 90°, and O. S. V.$=\frac{18}{XV}$ w+1.00 cyl. ax. at 90°.

The patient was instructed to wear the plus cylinders constantly beginning while the cycloplegia was yet present. At the expiration of two weeks the asthenopic symptoms existed only in her memory and she has remained comfortable to this time, so far as her eyes are concerned.

CASE III.—Is interesting because every practitioner has not seen a decided case of ear-cough, though it has a dis-

tinct place in the nomeuclature of troubles to which the human family is heir. On the advice of Dr. Kitchens I was called by Mr. L. H. E., on February 29 to see his child, age seven months, and instructed to carry such instruments as I might need in examining the throat for a persistent cough the cause for which the doctor had not been able to locate. I found an artificially fed child fairly well nourished and one that had been coughing during the greater part of its waking hours for quite a number of days. During the few days previous to my seeing it the little sufferer would cough incessantly for hours at a time, till, from sheer exhaustion, it would fall asleep. The character of the cough was quite unlike that of pertussis or bronchitis, the spasmodic features being absent. On the contrary the child would lie for some while at a time comparatively quiet, and yet each expiratory movement of respiration would be accompanied by a weak hoarse cough.

With reflected light and the laryngoscope I could find no abnormality save a laryngeal congestion as a result of the protracted cough. Neither could I find rales or other symptoms suggestive of lesions in the mucous membrane of the air-passages. Suspecting that the cough was reflex in origin I examined the external auditory canals and found both completely filled with very hard cerumen which I removed with the curette and syringe. From this time improvement began, and in a few days the cough was entirely gone and the child's original health restored.

Reflex ear-cough may be explained in the following way: The irritation which is received by the distributing fibres of the auriculo-pneumogastric nerve in the auditory meatus and tympanic membrane is transmitted by way of the motor fibres of the superior laryngeal nerve to the mucous membrane of the larynx, exciting the act of coughing. A splendid diagram illustrating this may be found in Rotch's late work on pediatrics.

THE MORPHINE QUESTION.

C. C. STOCKARD, M. D., ATLANTA.

Since the introduction into the practice of medicine of the hypodermatic syringe, the morphine disease has become more and more common, as is evidenced by the great increase in the amount of morphia sold, as well as by the innumerable institutes and cures for the morphine habit advertised. This increase is so marked, and the cause so evident, that the question presents itself: As the medical profession is so largely responsible for this evil, and for the untold suffering of the unfortunate subjects of this addiction, is it not also a duty we owe to society and to these enslaved ones to do what we can to prevent the further spread, and also for the relief of those already ruled by the iron hand of King Morphia?

We all know how uncomfortable it is to miss getting the morning cup of coffee, how lost the smoker is without his tobacco, and how impossible it for the toper to resist the inclination to drink when the effect of the last drink is wearing off; but the anguish, the horror, the actual physical suffering of one unable to get his usual quantum of morphine can only be imagined by those who have seen this condition of things, and is realized under no other circumstances on earth.

What, then, are our duties in this matter? First, to do all we can to limit the spread of this dire affliction; and, second, to give those already enslaved, advice as to the best method of regaining their freedom. I have often said that the world would be better off without alcohol in all its forms; and though in the individual case the the ruin is more rapid, more sure, and more complete, as a rule, from morphine addiction, still the instances are so

many where suffering is alleviated more quickly, surely, and safely than could be done by any other means, that I would not banish opium, and the work of the physician would be much more unsatisfactory without it. Still, though fully realizing its real worth to us, the evil sometimes resulting from its use should stand out mountain high as a warning to us not to use it unnecessarily, and particularly to avoid letting the patient know what is being used, or to let any one else administer it by the hypodermatic method for us. The dangers when administered by mouth are not nearly so great.

As we nearly always give atropine combined with the morphine, it is my habit to say, "I will give you a dose of atropine, and you will soon be relieved of your pain," and thus avoid, whenever I can, letting the patient know that morphine has been given.

In addition to being thus careful to avoid starting the habit, we ought to try to bring about legislation preventing the refilling of prescriptions without the authority of the prescriber, and this should apply to all prescriptions, and not be limited to those only containing opium.

As for our duty to those already enslaved by this unmerciful master, should we not feel that, as a large majority fall victims to this disease as the result of our prescribing, it is our duty to do what we can for their relief?

Unfortunately there is no medicine, or combination of medicines, which will completely relieve the symptoms attendant upon leaving off the morphia and do away with the desire for it. If there were, they would all be cured; for, while all are willing to take medicine at their homes, still allowed the opiate as long as they desire it, not nearly all will consent to go into a treatment which involves their not being able to get it should they want it. Owing to this, the innumerable advertised cures prosper.

There are remedies, to be sure, which, to a certain extent, relieve the withdrawal symptoms and make them, with the encouragement of the attendants, bearable, but none that will enable the patient, left to take the opiate

if he choose, to resist the temptation. The conditions necessary for relief are that the patient shall be so placed in charge of a reliable nurse that the physician may be sure that no opiate is taken except as ordered, that there shall be no organic disease, and that the patient shall be earnestly desirous of relief. When these conditions can be secured, whether at home, which can very rarely be done, or elsewhere, the cure can usually be effected in a few weeks.

When the disease still exists for which the opiate was first used, this, if possible, should be removed, by surgical operation or otherwise, before the cure is undertaken, though, in certain cases, it is better to withdraw the morphia and build up the constitution first. When the disease which brought about the habit cannot be removed, it is generally useless to undertake the withdrawal of the morphia, as relapse is sure to follow.

There are three methods employed in withdrawing the morphia, viz.: the sudden method of Levenstein; the gradual method, extending over weeks or months; and some modifications of Erlenmeyer's plan, which consists of a rapid withdrawal of the morphia—say in a week or ten days' time—at the same time relieving the symptoms attendant by bromides, laudanum, or better, codeine, and hypnotics, sulfonal, trional, etc., and afterwards building-up treatment, consisting of diet, tonics, baths, electricity, and pleasant mental diversion. Usually, after four weeks of this latter treatment, which is the most rational and best, the patient can safely return home, and if then pleasantly and profitably employed, there will be no relapse.

If by these remarks I shall awaken some thinking as to our duty on this important subject, my object shall be attained.

TWO CASES OF CONSERVATIVE SURGERY OF THE HAND.

BY J. W. GRIGGS, M.D., WEST POINT.

The hand is by odds the chief factor in the human economy's general make-up. Its varied uses are at once apparent, and to no one more than the surgeon when called upon to exercise his prerogative of working for the furtherance of human needs or his own convenience, or for the upbuilding of an enviable reputation. Ever recognizing the potency of conservatism, ignoring the plaudits of popular demand, the responsibilities will, at last, rest between the subject's ability to earn a livelihood and the surgeon's skill in attacking a greater portion of the member than is necessary. It is a well authenticated fact that the hand has an almost miraculous power of reparation inherent within itself. With this knowledge before him the surgeon should be slow to condemn without a careful survey of the field and have for his guidance prudence, backed up by a fearlessness born of the exigencies of the occasion, each case to be properly reviewed, weighed and adjudged upon its merits.

The first case which I desire to call your attention to, in reference to conservatism in relation to the above caption, occurred in October, 1895. Mr. John Kent, a carder in the great cotton mills at Langdale, four and one-half miles from West Point, on the Alabama side, while cleaning the cards, not perceiving that the large cylinders with their sharp hooks were still in rapid revolution, thrust his left hand in too close proximity to them, was caught and fearfully lacerated. Three fingers, index, middle and ring, were almost reduced to a pulpy mass, tearing away the integument from the back of the hand from the middle

of the metacarpal bones of the above-named fingers, extending to the wrist. The thumb and small finger were also much injured, but were not seriously so, the bones being intact. It was a nice point of discrimination to determine which procedure was best—to amputate the whole hand, or to excise the fingers most involved, with the want of flap entailing the necessity of grafts, possibly loss of finger or thumb. The latter operation was decided upon. Assisted by Dr. W. J. Meadows, the patient was etherized, the hand well cleansed with soap and water, the parts shaved and wrapped in towels saturated with the usual solution hydrarg. bichloride 1 to 1000. An incision was made along the inner border of thumb, excluding as much of the palmar surface as possible, passing to the inner side of the small finger; the knife was then passed between the ring and the little finger, avoiding any injury to the palm, carried to about one and one-half inches along the metacarpal bones of those two fingers; the same was done from the radial side, the saw was applied and the hand dressed antiseptically, the flaps held *in situ* by bandages. On fourth day dressings were removed and the denuded surface presented delicate granulations. Instead of resorting to skin grafts as anticipated, an old and time-honored remedy—carbolized basilicon ointment was used after the surface had been well dusted with iodoform. Under this stimulating treatment the skin seemed to extend uniformly from its granulating edges toward a common center, and within a short while the patient was gratified by the satisfaction of a perfectly healed hand. He has worked most of the year and has remarkable use of the thumb and little finger, and considers it a great boon that they were preserved to him. The cosmetic effect is by no means pleasing, having a crab-claw appearance. It gives proof of what was said in the beginning, that the hand has the highest degree of reparation and this particular individual would not be without the isolated finger and thumb for any amount.

One other case of much greater interest I will cite. About the middle of December, 1895, Fannie Dooley was brutally assaulted by her husband with an axe. With murderous intent he cut her about the head and face, and in her efforts to ward off the blows, had her left hand almost entirely severed at the wrist. I, in company with Drs. W. J. Meadows and A. F. Griggs, arrived six hours afterwards. Upon investigation found her wounds about head and face deep and painful, but not serious enough to endanger life. Made an examination of the wound inflicted at the wrist. The hand was almost entirely severed; every tendon had been cut, the radial artery was in twain; the hand was warm but seemed hanging by a little integument and fascia. Within the latter must have been the ulnar artery. The doctors advised cutting it and slipping back the cuff, and making a regular amputation, but finding the hand perfectly warm, experience had taught me that it might yet be saved. After giving all other wounds proper assistance, the hand was carefully scrutinized. It revealed the fact that the axe had not entered the joint proper, but cut in a diagonal direction above from the radial side, slanting toward the little finger, on the ulnar side, in fact, chopping off the epiphysial end of the radius and winding up with pisiform bone of the carpus. The tendons were brought down and stitched together as near as possible. For months she was in bed, not altogether on account of the injury to the hand, but indeed, for other seemingly grave wounds received about the head. The outer plate of the left parietal bone was protruding about half an inch the full length of a six-inch cut, which, to the casual observer, would have seemed sufficient to prove fatal. Two other cuts, one extending from the temporal bone above and extending through the zygoma and masseter muscle, with a cross-cut six inches under the lobe of the right ear, almost entirely severing the sterno-cleido mastoid. Why the vessels escaped is yet a mystery to us all. Lingering, hoping for the best, she soon began to rally. We found the wound showed evi-

dence of uniting; with untiring zeal every known device was used to induce a healthy union—bichloride mercury washes, iodoform, and the aforesaid basilicon ointment with carbolic acid, were used. The hand was soon firmly united to the wrist, and was seen April 8, about five months after the injury was incurred. It presented a perfect study for any surgeon. A broad band encircled the wrist, showing the suture holes, proving guides to the certain extent of injury. The hand was slightly puffed or swollen, the fingers, whether from inertia or failure of union of tendons, were seemingly useless. Here is the finest proof of Dame Nature in favor of the salvation of that useful member, it matters not how hopeless the chances may seem to be. This is given as a text, and for those young men who are ever too ready to cut. It was in a measure experimental, but when asked about her wishes in the premises the other day, she replied that she would rather have the hand as it now is than none at all.

I mention these two cases to substantiate that saying of my fathers, that the reparative resources of the hand are incalculable.

CONSTITUTION AND BY-LAWS

OF THE

MEDICAL ASSOCIATION OF GEORGIA.

CONSTITUTION.

(ADOPTED 1873.)

ARTICLE I.

NAME.

The name and style of this Association shall be "THE MEDICAL ASSOCIATION OF GEORGIA."

ARTICLE II.

OBJECTS.

SECTION 1. The object of this Association shall be to organize the medical profession of the State in the most efficient manner possible; to encourage a high standard of professional qualifications and ethics, and to promote professional brotherhood.

ARTICLE III.

MEMBERS.

SECTION 1. There shall be only one class of members in this Association. Any regularly educated white physician, who resides within the limits of this State, who is a graduate of a regular Medical College in good standing, and who adopts and conforms to the Code of Ethics of the American Medical Association, shall be eligible to membership in this body.

ARTICLE IV.

OFFICERS.

SECTION 1. The officers of the Medical Association of the State of Georgia shall be as follows: 1st. One President; 2d. Two Vice-Presidents; 3d. One Secretary; 4th. One Treasurer; 5th. Five Censors.

SEC. 2. The President shall be elected for one year; the Vice-Presidents for one year; the Secretary for five years, the Treasurer for five years—but every officer shall continue in office until his successor is elected and installed in office.

SEC. 3. The Board of Censors shall be elected at the present session by the Association—one for a period of five years, one for four years, one for three years, one for two years, one for one year; and annually thereafter the vacancy occurring in the Board of Censors shall be filled by election.

ARTICLE V.

PRESIDENT.

SECTION 1. The President shall be the chief executive officer of the Association. He shall preside at all the meetings of the body, preserve order, and give the casting vote when necessary, and perform such other duties as parliamentary usages impose on presiding officers.

SEC. 2. He shall prepare and deliver, at the opening of each annual session, an address on some subject connected with the interests and objects of this Association.

SEC. 3. He shall appoint annually the requisite number of delegates to the American Medical Association, and to such other scientific bodies as it may be expedient to have this Association represented in.

SEC. 4. He shall appoint an orator, whose duty it shall be to prepare and deliver a public address on some subject connected with medicine, or the medical profession, at the next annual meeting after his appointment.

SEC. 5. He shall, in the intervals between the annual sessions, direct and control the general policy and business of the Association, but always with careful attention to the precedents and customary usage of the Association, and to its constitutional provisions.

ARTICLE VI.

VICE-PRESIDENTS.

SECTION 1. Vice-Presidents, in their order, shall, in case of the absence or the death of the President, discharge all the duties belonging to the presidential office.

ARTICLE VII.

SECRETARY.

SECTION 1. The Secretary shall have charge of all the books, papers and records of the Association, except those belonging to the office of Treasurer.

SEC. 2. He shall record the minutes of the Association at all its meetings.

SEC. 3. He shall conduct the correspondence of the Association under the direction of the President, and shall be Chairman of the Publishing Committee.

SEC. 4. He shall keep the roll of the members of this body who have retained their membership by compliance with the provisions of this Constitution, and also the names of those who have forfeited membership, together with the cause of such forfeiture.

SEC. 5. In the absence of the Treasurer he shall collect the usual dues of the members in attendance at the regular session.

SEC. 6. The necessary expense incurred by the Secretary in attending the annual session shall be defrayed out of the funds of the Association.

ARTICLE VIII.

TREASURER.

SECTION 1. The Treasurer shall collect the annual dues and have custody of all the moneys belonging to the Asso-

ciation, and shall respond to the calls of the Secretary, by order of the President, as far as he may have funds in his possession.

SEC. 2. He shall make annual reports of the financial condition of the Association, and the several amounts received during the year, and from whom; the several amounts due by the Association, if any, to whom, and on what account; the several amounts due to the Association, if any, by whom, and on what account.

SEC. 3. The necessary expense incurred by the Treasurer in attending the annual sessions shall be paid out of the funds of the Association.

ARTICLE IX.

CENSORS.

SECTION 1. The Board of Censors shall hold annual meetings concurrently with the annual sessions of the Association, to whom shall be referred all applications for membership, with vouchers from two members; and in such case their decision shall be reported to the body for action. Three of their number shall constitute a quorum, and the Chairman and Secretary shall be designated by the President.

SEC. 2. They shall take cognizance of all offenses against the Association or its Code of Ethics, and shall be authorized to strike from the list of membership all violators of its regulations, and shall report the names of the individuals, and the offense from which action has been taken, immediately to the Association, at which time, or at the next succeeding meeting, all such individuals may have the right to appeal to that body.

SEC. 3. In the event of a failure of a quorum of the Board of Censors to attend at any annual meeting, it shall be the duty of the President to supply the vacancy by a temporary appointment.

ARTICLE X.

FINANCES.

SECTION 1. Every member of the Association shall pay annually into the Treasury such sum as the Association may determine, which amount, it is expected, will be paid during the session of the body.

ARTICLE XI.

CONSTITUTION.

SECTION 1. The Constitution shall take immediate effect from its adoption.

SEC. 2. The By-Laws now in operation, and Order of Business, are adopted, so far as they agree with the new Constitution.

ARTICLE XII.

ANNUAL MEETING.

SECTION 1. The annual meetings shall take place on the third Wednesday in April, and at such place as shall be designated by a majority of the Association.

ARTICLE XIII.

AMENDMENTS.

SECTION 1. Any amendment that may be offered to the Constitution shall lie over until the next annual meeting; and for its adoption at such meeting shall require a two-thirds vote of all present and voting.

BY-LAWS.

(ADOPTED 1875.)

ORDER OF BUSINESS.

The Order of Business of this body, unless ordered by a two-thirds vote of the members, shall be as follows:

1. Calling the Association to order by the President, or, in case of his absence, by one of the Vice-Presidents.
2. Report of Committee of Arrangements.
3. President's Address.
4. Reading notes from absentees.
5. Election of members.
6. Reports of Special Committees.
7. Report of Committee on Publication.
8. Report of Committee on Necrology.
9. Report of Committee on Programme.
10. Voluntary Communications. [To be read by title and held subject to call of the Association.]
11. Selection of place for next annual meeting.
12. Unfinished business.
13. New business.
14. Installation of new officers.

Resolved, That the officers of the Association be elected by ballot, without a nomination, at eleven o'clock on the morning of the last day of the Association, and if there is no election on the first ballot, the three names receiving the highest number of ballots shall be voted on, the other names being dropped. If there is no election on second ballot, the two names receiving the highest number of ballots shall be voted on until an election is had.

STANDING COMMITTEES.

The Committee of Arrangements shall consist of five members who reside at the place selected for the ensuing meeting. It shall be their duty to provide suitable accommodations for the meetings of the Association, and to superintend the registration of members in attendance.

The Committee on Publication shall consist of four members in addition to the Secretary, who is Chairman *ex officio*. They shall provide for the publication of the minutes of the session, together with such papers as are deemed worthy. They shall also append to each volume of Transactions a copy of the Constitution and By-Laws of the Association, Roll of Membership and Code of Ethics of the American Medical Association.

The Committee on Necrology shall consist of five members, whose duty it shall be to procure memorials of deceased members, and present them for publication in the Transactions.

ASSESSMENTS.

Each member shall pay annually to the Association such sums as the Association may determine.

OFFICERS—TIME OF ASSUMING THEIR DUTIES.

The Secretary and Treasurer shall enter upon the duties pertaining to their office at the time of their election; the President, Vice-President and Censors, at the commencement of the annual meeting succeeding their election.

AMENDMENTS.

I.

APPLICANTS FOR MEMBERSHIP.

The names of all applicants for membership shall first be presented to the Association in a body, and then referred to the Board of Censors. [See, also, Duties of Censors—Constitution, Article IX, Section 1.]

II.

INITIATION FEE.

An initiation fee of FIVE DOLLARS shall be required of every new member hereinafter elected to the Association; which fee must accompany the application for membership.

III.

ANNUAL ASSESSMENTS.

The annual assessment of every member of the Association shall be THREE DOLLARS.

IV.

MEMBERS IN ARREARS.

The name of any member who shall fail for two consecutive years to pay the annual assessment shall be dropped from the roll of membership, the Treasurer notifying such member of the state of his account.

V.

TREASURER'S CALL FOR DUES.

The Treasurer shall, immediately after the meeting of the Association, issue a call for the dues of absent mem-

bers, by postal card, impressing upon them the need of prompt payment of the small assessment herein provided, by every member of the Association, and notifying them of the constitutional provision requiring the names of delinquents to be stricken from the roll of membership by the Secretary.

VI.

LIFE MEMBERSHIP.

The assessment for life membership shall be THIRTY dollars, exempting from annual dues, the sum so received to be invested and the interest used to pay the annual dues of said life member. A member may hold as many life memberships as he desires, and shall be entitled to one vote for each.

VII.

PAPERS AND PUBLICATIONS.

1. No paper shall be read before this Association, by title, or otherwise, until a complete copy of such paper shall have been placed in the hands of the Secretary for publication in the Transactions. This rule shall not prevent the publication of such paper in any medical journal at any time.

2. No article shall be published in the Transactions until it shall have been recommended by the Committee on Publication.

3. Repeals all conflicting laws.

VIII.

AMENDMENTS.

Any change in these By-Laws can only be made by a vote of two-thirds of all the members present.

The Secretary desires to call attention to the following resolution, which was adopted by the Association, in

Augusta, in 1886, and while it was not offered as an amendment to the By-Laws, yet, if carried out, it would operate in that way. The resolution is as follows:

"*Resolved*, That the second day of the next and each subsequent session of this Association be set apart for *omnibus* discussion."

CODE OF MEDICAL ETHICS.

CHAPTER I.

OF THE DUTIES OF PHYSICIANS TO THEIR PATIENTS, AND OF THE OBLIGATIONS OF PATIENTS TO THEIR PHYSICIANS.

ARTICLE I.

DUTIES OF PHYSICIANS TO THEIR PATIENTS.

§ 1. A physician should not only be ever ready to obey the calls of the sick, but his mind ought also to be imbued with the greatness of his mission, and the responsibility he habitually incurs in its discharge. Those obligations are the more deep and enduring, because there is no tribunal, other than his own conscience, to adjudge penalties for carelessness or neglect. Physicians should, therefore, minister to the sick with due impressions of the importance of their office; reflecting that the ease, the health, and the lives of those committed to their charge depend on their skill, attention and fidelity. They should study, also, in their deportment, so to unite *tenderness* with *firmness*, and *condescension* with *authority*, as to inspire the minds of their patients with gratitude, respect and confidence.

§ 2. Every case committed to the charge of a physician should be treated with attention, steadiness, and humanity. Reasonable indulgence should be granted to the mental imbecility and caprices of the sick. Secrecy and delicacy, when required by peculiar circumstances, should be strictly observed, and the familiar and confidential intercourse to which physicians are admitted in their professional visits should be used with discretion, and with the most scrupulous regard to fidelity and honor. The obligation of secrecy extends beyond the period of

professional service; none of the privacies of personal and domestic life, no infirmity of disposition or flaw of character observed during professional attendance should ever be divulged by the physician, except when he is imperatively required to do so. The force and the necessity of this obligation are indeed so great that professional men have, under certain circumstances, been protected in their observance of secrecy by courts of justice.

§ 3. Frequent visits to the sick, are, in general, requisite, since they enable the physician to arrive at a more perfect knowledge of the disease—to meet promptly every change which may occur, and also tend to preserve the confidence of the patient; but unnecessary visits are to be avoided, as they give useless anxiety to the patient, tend to diminish the authority of the physician, and to render him liable to be suspected of interested motives.

§ 4. A physician should not be forward to make gloomy prognostications, because they savor of empiricism, by magnifying the importance of his services in the treatment or cure of the disease. But he should not fail, on proper occasions, to give to the friends of the patient timely notice of danger when it really occurs; and even to the patient himself if absolutely necessary. This office, however, is so peculiarly alarming when executed by him, that it ought to be declined whenever it can be assigned to any other person of sufficient judgment and delicacy; for the physician should be the minister of hope and comfort to the sick; that, by such cordials to the drooping spirit he may smooth the bed of death, revive expiring life, and counteract the depressing influence of those maladies which often disturb the tranquillity of the most resigned in the last moments. The life of a sick person can be shortened, not only by the acts, but also by the words or the manner of a physician. It is, therefore, a sacred duty to guard himself carefully in this respect, and to avoid all things which have a tendency to discourage the patient and depress his spirits.

§ 5. A physician ought not to abandon his patient because the case is deemed incurable; for his attendance may continue to be highly useful to the patient, and comforting to the relatives around him, even in the last period of a fatal malady, by alleviating pain and other symptoms, and by soothing mental anguish. To decline attendance under such circumstance, would be sacrificing to fanciful delicacy and mistaken liberality that moral duty, which is independent of, and far superior to, all pecuniary consideration.

§ 6. Consultations should be promoted in difficult or protracted cases, as they give rise to confidence, energy, and more enlarged views in practice.

§ 7. The opportunity which a physician not unfrequently enjoys of promoting and strengthening the good resolutions of his patients, suffering under the consequences of vicious conduct, ought never to be neglected. His counsels, or even remonstrances, will give satisfaction, not offense if they be proffered with politeness and evince a genuine love of virtue, accompanied by a sincere interest in the welfare of the person to whom they are addressed.

ARTICLE II

OBLIGATIONS OF PATIENTS TO THEIR PHYSICIANS.

§ 1. The members of the medical profession, upon whom is enjoined the performance of so many important and arduous duties towards the community, and who are required to make so many sacrifices of comfort, ease, and health for the welfare of those who avail themselves of their services, certainly have a right to expect and require that their patients should entertain a just sense of the duties which they owe to their medical attendants.

§ 2. The first duty of a patient is to select as his medical adviser one who has received a regular professional education. In no trade or occupation does mankind rely on the skill of an untaught artist; and in medicine, con-

fessedly the most difficult and intricate of the sciences the world ought not to suppose that knowledge is intuitive.

§ 3. Patients should prefer a physician whose habits of life are regular, and who is not devoted to company, pleasure, or any pursuit incompatible with his professional obligations. A patient should also confide the care of himself and family as much as possible to one physician; for a medical man who has become acquainted with the peculiarities of constitution, habits and predispositions of those he attends is more likely to be successful in his treatment than one who does not possess that knowledge.

A patient who has thus selected his physician should always apply for advice in what may appear to him trivial cases, for the most fatal results often supervene on the slightest accidents. It is of still more importance that he should apply for assistance in the forming stage of violent diseases; it is to a neglect of this precept that medicine owes much of the uncertainty and imperfection with which it has been reproached.

§ 4. Patients should faithfully and unreservedly communicate to their physicians the supposed cause of their disease. This is the more important, as many diseases of mental origin stimulate those depending on external causes, and yet are only to be cured by ministering to the mind diseased. A patient should never be afraid of thus making his physician his friend and adviser. He should always bear in mind that a medical man is under the strongest obligations of secrecy. Even the female sex should never allow feelings of shame or delicacy to prevent their disclosing the seat, symptoms, and causes of complaints peculiar to them. However commendable a modest reserve may be in the common occurrences of life, its strict observance in medicine is often attended with the most serious consequences, and the patient may sink under a painful and loathsome disease, which might have been readily prevented had timely intimation been given to the physician.

§ 5. A patient should never weary his physician with a tedious detail of events or matters not appertaining to his disease. Even as relates to his actual symptoms he will convey much more real information by giving clear answers to interrogatories, than by the most minute account of his own framing. Neither should he obtrude upon his physician the details of his business, nor the history of his family concerns.

§ 6. The obedience of a patient to the prescriptions of his physician should be prompt and implicit. He should never permit his own crude opinions as to their fitness to influence his attention to them. A failure in one particular may render an otherwise judicious treatment dangerous, and even fatal. This remark is equally applicable to diet, drink, and exercise. As patients become convalescent, they are very apt to suppose that the rules prescribed for them may be disregarded ; and the conseqence, but too often, is a relapse. Patients should never allow themselves to be persuaded to take any medicine whatever that may be recommended to them by the self-constituted doctors and doctresses who are so frequently met with, and who pretend to possess infallible remedies for the cure of every disease. However simple some of their prescriptions may appear to be, it often happens that they are productive of much mischief, and in all cases they are injurious, by contravening the plan of treatment adopted by the physician.

§ 7. A patient should, if possible, avoid even the *friendly visits of a physician* who is not attending him, and when he does receive them, he should never converse on the subject of his disease, as an observation may be made, without any intention of interference, which may destroy his confidence in the course he is pursuing, and induce him to neglect the directions prescribed to him. A patient should never send for a consulting physician without the express consent of his own medical attendant. It is of great importance that physicians should act in concert ; for, although their modes of treatment may be attended

with equal success when employed singly, yet conjointly, they are very likely to be productive of disastrous results.

§ 8. When a patient wishes to dismiss his physician, justice and common courtesy require that he should declare his reasons for so doing.

§ 9. Patients should always, when practicable, send for their physicians in the morning, before his usual hour of going out; for, by being early aware of the visits he has to pay during the day, the physician is able to apportion his time in such a manner as to prevent an interference of engagements. Patients should also avoid calling on their medical advisers unnecessarily during the hours devoted to meals or sleep. They should always be in readiness to receive the visits of their physician, as the detention of a few minutes is often of serious inconvenience to him.

§ 10. A patient should, after his recovery, entertain a just and enduring sense of the value of the services rendered him by his physician; for these are of such a character, that no mere pecuniary acknowledgment can repay or cancel them.

CHAPTER II.

OF THE DUTIES OF PHYSICIANS TO EACH OTHER, AND TO THE PROFESSION AT LARGE.

ARTICLE I.

DUTIES FOR THE SUPPORT OF PROFESSIONAL CHARACTER.

§ 1. Every individual, on entering the profession, as he becomes thereby entitled to all its privileges and immunities, incurs an obligation to exert his best abilities to maintain its dignity and honor, to exalt its standing, and to extend the bounds of its usefulness. He should, therefore, observe strictly such laws as are instituted for the government of its members; should avoid all contumelious or sarcastic remarks relative to the faculty as a body; and while, by unwearied diligence, he resorts to every honorable means of enriching the science, he should entertain a due respect for his seniors, who have, by their labors, brought it to the elevated condition in which he finds it.

§ 2. There is no profession, from the members of which greater purity of character, and a higher standard of moral excellence are required, than the medical; and to attain such eminence is a duty every physician owes alike to his profession and to his patients. It is due to the latter, as without it he cannot command their respect and confidence; and to both, because no scientific attainments can compensate for the want of correct moral principles. It is also incumbent upon the faculty to be temperate in all things, for the practice of physic requires the unremitting exercise of a clear and vigorous understanding; and in emergencies, for which no professional man should be unprepared, a steady hand, an acute eye, and an unclouded head may be essential to the well-being and even to the life of a fellow creature.

§ 3. It is derogatory to the dignity of the profession to resort to public advertisements or private cards, or hand-

bills, inviting the attention of individuals affected with particular diseases—publicly offering advice and medicine to the poor gratis, or promising radical cures; or to publish cases or operations in the daily prints, or suffer such publications to be made; to invite laymen to be present at operations, to boast of cures and remedies, to adduce certificates of skill and success, or to perform any other similar acts. These are the ordinary practices of empirics, and are highly reprehensible in a regular physician.

§ 4. Equally derogatory to professional character is it for a physician to hold a patent for any surgical instrument or medicine; or to dispense a secret *nostrum*, whether it be the composition or exclusive property of himself or others. For if such *nostrum* be of real efficacy, any concealment regarding it is inconsistent with beneficence and professional liberality; and if mystery alone gave it value and importance, such craft implies either disgraceful ignorance or fraudulent avarice. It is also reprehensible for physicians to give certificates attesting the efficacy of patent or secret medicines, or in any way to promote the use of them.

ARTICLE II.

PROFESSIONAL SERVICES OF PHYSICIANS TO EACH OTHER.

§ 1. All practitioners of medicine, their wives and their children, while under the paternal care, are entitled to the gratuitous services of any one or more of the faculty residing near them, whose assistance may be desired. A physician afflicted with disease is usually an incompetent judge of his own case, and the natural anxiety and solicitude which he experiences at the sickness of a wife a child, or any one who, by the ties of consanguinity, is rendered peculiarly dear to him, tend to obscure his judgment, and produce timidity and irresolution in his practice. Under such circumstances, medical men are peculiarly dependent upon each other, and kind offices and professional aid should always be cheerfully and

gratuitously afforded. Visits ought not, however, to be obtruded officiously, as such unasked civility may give rise to embarrassment, or interfere with that choice on which confidence depends. But, if a distant member of the family, whose circumstances are affluent, requests attendance, and an *honorarium* be offered, it should not be declined; for no pecuniary obligation ought to be imposed which the party receiving it would wish not to incur.

ARTICLE III.

OF THE DUTIES OF PHYSICIANS AS RESPECTS VICARIOUS OFFICES.

§ 1. The affairs of life, the pursuit of health, and the various accidents and contingencies to which a medical man is peculiarly exposed, sometimes require him temporarily to withdraw from his duties to his patients and to request some of his professional brethren to officiate for him. Compliance with this request is an act of courtesy, which should always be performed with the utmost consideration for the interest and character of the family physician, and when exercised for a short period all the pecuniary obligations for such service should be awarded to him. But if a member of the profession neglects his business in quest of pleasure and amusement he cannot be considered as entitled to the advantages of the frequent and long-continued exercise of this fraternal courtesy without awarding to the physician who officiates the fees arising from the discharge of his professional duties.

In obstetrical and important surgical cases, which give rise to unusual fatigue, anxiety and responsibility, it is just that the fees accruing therefrom should be awarded to the physician who officiates.

ARTICLE IV.

OF THE DUTIES OF PHYSICIANS IN REGARD TO CONSULTATIONS.

§ 1. A regular medical education furnishes the only presumptive evidence of professional abilities and acquire-

ments, and ought to be the only acknowledged right of an individual to the exercise and honors of his profession. Nevertheless, as in consultations the good of the patient is the sole object in view, and this is often dependent on personal confidence, no intelligent, regular practitioner, who has a license to practice from some medical board of known and acknowledged respectability, recognized by the American Medical Association, and who is in good moral and professional standing in the place in which he resides, should be fastidiously excluded from fellowship, or his aid refused in consultation, when it is requested by the patient. But no one can be considered as a regular practitioner, or a fit associate in consultation, whose practice is based on an exclusive dogma to the rejection of the accumulated experience of the profession, and of the aids actually furnished by anatomy, physiology, pathology and organic chemistry.

§ 2. In consultations no rivalship or jealousy should be indulged. Candor, probity, and all due respect should be exercised toward the physician having charge of the case.

§ 3. In consultations the attending physician should be the first to propose the necessary questions to the sick; after which the consulting physician should have the opportunity to make such further inquiries of the patient as may be necessary to satisfy him of the true character of the case. Both physicians should then retire to a private place for deliberation, and the one first in attendance should communicate the directions agreed upon to the patient or his friends, as well as any opinions which it may be thought proper to express, but no statement or discussion of it should take place before the patient or his friends, except in the presence of all the faculty attending, and by their common consent; and no *opinions* or *prognostications* should be delivered which are not the result of previous deliberations and concurrence.

§ 4. In consultation, the physician in attendance should deliver his opinion first; and when there are several consulting, they should deliver their opinions in the order in

which they have been called in. No decision, however, should restrain the attending physician from making such variations in the mode of treatment as any subsequent unexpected change in the character of the case may demand. But such variation and the reason for it ought to be carefully detailed at the next meeting in consultation. The same privilege belongs also to the consulting physician if he is sent for in an emergency, when the regular attendant is out of the way, and similar explanations must be made by him at the next consultation.

§ 5. The utmost punctuality should be observed in the visits of physicians when they are to hold consultations together; and this is generally practicable, for society has been considerate enough to allow the plea of a professional engagement to take precedence of all others, and to be an ample reason for the relinquishment of any present occupation; but, as a professional engagement may sometimes interfere and delay one of the parties, the physician who first arrives should wait for his associate a reasonable period, after which the consultation should be considered as postponed to a new appointment. If it be the attending physician who is present, he will, of course, see the patient and prescribe, but if it be the consulting one, he should retire, except in case of emergency, or when he has been called from a considerable distance, in which latter case he may examine the patient and give his opinion in *writing* and *under seal*, to be delivered to his associate.

§ 6. In consultations, theoretical discussions should be avoided, as occasioning perplexity and loss of time, for there may be much diversity of opinion concerning speculative points, with perfect agreement in those modes of practice which are founded, not on hypothesis, but on experience and observation.

§ 7. All discussions in consultation should be held as secret and confidential. Neither by words nor manner should any of the parties to a consultation assert or insinuate that any part of the treatment pursued did not

receive his assent. The responsibility must be equally divided between the medical attendants. They must equally share the credit of success, as well as the blame of failure.

§ 8. Should an irreconcilable diversity of opinion occur when several physicians are called upon to consult together, the opinion of the majority should be considered decisive; but if the number be equal on each side, then the decision should rest with the attending physician. It may, moreover, sometimes happen that two physicians cannot agree in their views of the nature of a case and the treatment to be pursued. This is a circumstance much to be deplored, and should always be avoided, if possible, by mutual concessions as far as they can be justified by a conscientious regard for the dictates of judgment; but in the event of its occurrence, a third physician should, if practicable, be called to act as umpire; and if circumstance prevent the adoption of this course, it must be left to the patient to select the physician in whom he is most willing to confide; but as every physician relies upon the rectitude of his judgment, he should, when left in the minority, politely and consistently retire from further deliberation in the consultation, or participation in the management of the case.

§ 9. As circumstances sometimes occur to render a *special consultation* desirable, when the continued attendance of the physicians might be objectionable to the patient, the member of the faculty whose assistance is required in such cases should sedulously guard all future unsolicited attendance. As such consultations require an extraordinary portion both of time and attention, at least a double *honorarium* may be reasonably expected.

§ 10. A physician who is called upon to consult, should observe the most honorable and scrupulous regard for the character and standing of the practitioner in attendance; the practice of the latter, if necessary, should be justified as far as it can be, consistently with a conscientious regard for truth, and no hint or insinuation should be thrown

out which could impair the confidence reposed in him or affect his reputation. The consulting physician should also carefully refrain from any of those extraordinary attentions or assiduities which are too often practiced by the dishonest for the base purpose of gaining applause, or ingratiating themselves into the favor of families and individuals.

ARTICLE V.

DUTIES OF PHYSICIANS IN CASES OF INTERFERENCE.

§ 1. Medicine is a liberal profession, and those admitted into its ranks should found their expectations of practice upon the extent of their qualifications—not on intrigue or artifice.

§ 2. A physician, in his intercourse with a patient under the care of another practitioner, should observe the strictest caution and reserve. No meddling inquiries should be made—no disingenuous hints given relative to the nature and treatment of his disorder; nor any course of conduct pursued that may directly or indirectly tend to diminish the trust reposed in the physician employed.

§ 3. The same circumspection and reserve should be observed when, from motives of business or friendship, a physician is prompted to visit an individual who is under the direction of another practitioner. Indeed, such visits should be avoided, except under peculiar circumstances; and when they are made, no particular inquiries should be instituted relative to the nature of the disease, or the remedies employed, but the topics of conversation should be as foreign to the case as circumstances will admit.

§ 4. A physician ought not to take charge of, or prescribe for, a patient who has recently been under the care of another member of the faculty in the same illness, except in cases of sudden emergency; or in consultation with the physician previously in attendance, or when the latter has relinquished the case, or been regularly notified that his services are no longer desired. Under such cir-

cumstances no unjust or illiberal insinuations should be thrown out in relation to the conduct or practice previously pursued, which should be justified as far as candor and regard for truth and probity will permit; for it often happens that patients become dissatisfied when they do not experience immediate relief, and, as many diseases are naturally protracted, the want of success, in the first stage of treatment, affords no evidence of lack of professional knowledge or skill.

§ 5. When a physician is called to an urgent case, because the family attendant is not at hand, he ought, unless his assistance in consultation be desired, to resign the care of the patient to the latter immediately on his arrival.

§ 6. It often happens, in cases of sudden illness or of recent accident or injuries, owing to the alarm and anxiety of friends, that a number of physicians are simultaneously sent for. Under these circumstances courtesy should assign the patient to the first who arrives, who should select from those present any additional assistance that he may deem necessary. In all such cases, however, the practitioner who officiates should request the family physician, if there be one, to be called, and, unless his further attendance be requested, should resign the case to the latter upon his arrival.

§ 7. When a physician is called to the patient of another practitioner; in consequence of the sickness or absence of the latter, he ought, on the return or recovery of the regular attendant, and with the consent of the patient, to surrender the case.

[The expression, "patient of another practitioner," is understood to mean a patient who may have been under the charge of another practitioner at the time of the attack of sickness, or departure from home of the latter, or who may have called for his attendance during his absence or sickness, or in any manner given it to be understood that he regarded the said physician as his regular medical attendant.]

§ 8. A physician, when visiting a sick person in the country, may be desired to see a neighboring patient who is under the regular direction of another physician, in consequence of some sudden change or aggravation of symptoms. The conduct to be pursued on such an occasion, is to give advice adapted to present circumstances; to interfere no further than is absolutely necessary with the general plan of the treatment; to assume no further direction, unless it be expressly desired; and, in this last case, to request an immediate consultation with the practitioner previously employed.

§ 9. A wealthy physician should not give advice *gratis* to the affluent; because his doing so is an injury to his professional brethren. The office of physician can never be supported as an exclusively beneficient one; and it is defrauding, in some degree, the common funds for its support, when fees are dispensed with which might justly be claimed.

§ 10. When a physician who has been engaged to attend a case of midwifery is absent, and another is sent for, if delivery is accomplished during the attendance of the latter, he is entitled to the fee, but should resign the patient to the practitioner first engaged.

ARTICLE VI.

OF DIFFERENCES BETWEEN PHYSICIANS.

§ 1. Diversity of opinion and opposition of interest may, in the medical, as in other professions, sometimes occasion controversy, and even contention. Whenever such cases unfortunately occur, and can not be immediately terminated, they should be referred to the arbitration of a sufficient number of physicians, or a *court-medical*.

§ 2. As a peculiar reserve must be maintained by physicians towards the public, in regard to professional matters, and as there exists numerous points in medical ethics and etiquette through which the feelings of medical men may be painfully assailed in their intercourse with

each other, and which can not be understood or appreciated by general society, neither the subject matter of such differences, nor the adjudication of arbitrators should be made public, as publicity in a case of this nature may be personally injurious to the individuals concerned; and can hardly fail to bring discredit on the faculty.

ARTICLE VII.

OF PECUNIARY ACKNOWLEDGMENTS.

§ 1. Some general rules should be adopted by the faculty in every town or district, relative to *pecuniary acknowledgments* from their patients; and it should be deemed a point of honor to adhere to these rules with as much uniformity as varying circumstances will admit.

CHAPTER III.

OF THE DUTIES OF THE PROFESSION TO THE PUBLIC, AND OF THE OBLIGATIONS OF THE PUBLIC TO THE PROFESSION.

ARTICLE I.

DUTIES OF THE PROFESSION TO THE PUBLIC.

§ 1. As good citizens, it is the duty of physicians to be ever vigilant for the welfare of the community, and to bear their part in sustaining its institutions and burdens; they should also be ever ready to give counsel to the public in relation to matters especially appertaining to their profession, as on subjects of medical police, public hygiene, and legal medicine. It is their province to enlighten the public in regard to quarantine regulations, the location, arrangement, and dietaries of hospitals, asylums, schools, prisons, and similar institutions; in relation to the medical police of towns, as drainage, ventilation, etc., and in regard to measures for the prevention of epidemic and contagious diseases; and when pestilence prevails, it is their duty to face the danger, and to continue their labors for the alleviation of the suffering, even at the jeopardy of their own lives.

§ 2. Medical men should also be always ready, when called on by the legally constituted authorities to enlighten coroners' inquests and courts of justice on subjects strictly medical, such as involve questions relating to sanity, legitimacy, murder by poison or other violent means, and in regard to the various other subjects embraced in the science of Medical Jurisprudence. But in these cases, and especially where they are required to make a *post mortem* examination, it is just, in consequence of the time, labor, and skill required, and the responsibility and risk they incur, that the public should award them a proper *honorarium*.

§ 3. There is no profession by the members of which eleemosynary services are more liberally dispensed than the medical, but justice requires that some limit should be placed to the performance of such good offices. Poverty, professional brotherhood, and certain of the public duties referred to in the first section of this article should always be recognized as presenting valid claims for gratuitous services; but, neither institutions endowed by the public, or by rich individuals, societies for mutual benefit, for the insurance of lives or for analogous purposes, nor any profession or occupation, can be admitted to possess such privilege. Nor can it be justly expected of physicians to furnish certificates of inability to serve on juries, to perform militia duty, or to testify to the state of health of persons wishing to insure their lives, obtain pensions, or the like, without pecuniary acknowledgment. But to individuals in indigent circumstances, such professional services should always be cheerfully and freely accorded.

§ 4. It is the duty of physicians who are frequent witnesses of the enormities committed by quackery and the injury to health, and even destruction of life, caused by the use of quack medicines, to enlighten the public on these subjects, to expose the injuries sustained by the unwary from the devices and pretensions of artful empirics and impostors. Physicians ought to use all the influence which they may possess, as professors in Colleges of Pharmacy, and by exercising their option in regard to the shops to which their prescriptions shall be sent, to discourage druggists and apothecaries from vending quack or secret medicines, or from being in any way engaged in their manufacture and sale.

ARTICLE II.

OBLIGATIONS OF THE PUBLIC TO PHYSICIANS.

§ 1. The benefits accruing to the public, directly or indirectly, from the active and unwearied beneficence of the profession, are so numerous and important, that physicians

are justly entitled to the utmost consideration and respect from the community. The public ought likewise to entertain a just appreciation of medical qualifications; to make a proper discrimination between true science and the assumption of ignorance and empiricism—to afford every encouragement and facility for the acquisition of medical education—and no longer to allow the statute-books to exhibit the anomaly of exacting knowledge from physicians, under a liability to heavy penalties, and of making them obnoxious to punishment for resorting to the only means of obtaining it.

Resolved, That this Association recognize Specialties as proper and legitimate fields of practice.

Resolved, That Specialties shall be governed by the same rules of professional etiquette as have been laid down for general practitioners.

Resolved, That it shall not be proper for the Specialists publicly to advertise themselves as such, or assume any title not specially granted by a regularly chartered college.

ROLL OF MEMBERS

OF THE

MEDICAL ASSOCIATION OF GEORGIA.

1896.

ARRANGED ALPHABETICALLY.

ABBREVIATIONS—P., President; V-P., Vice-President; S., Secretary; C. S., Corresponding Secretary; T., Treasurer; O., Orator; C., Censor; indicating the offices the members hold or have held.

Members are particularly requested to notify the Secretary promptly on making any changes in their post-offices.

The Secretary will esteem it a favor if any member will write him at once on noticing any inaccuracy or omission in the roll.

Name.	Post-office.	County.	Admitted.
Adams, Wm. E.,	Greensboro,	Greene,	1891
Aikin, W. F.,	Savannah,	Chatham,	1895
Alexander, G. L.,	Forsyth,	Monroe,	1894
Allen, H. D.,	Milledgeville,	Baldwin,	1891
Allen, Joseph Eve,	Augusta,	Richmond,	1895
Amster, L.,	Atlanta,	Fulton,	1894
Anderson, Newt.,	Eudora,	Jasper,	1894
Anthony, E. R., (V-P.)	Griffin,	Spalding,	1887
Avant, A. L. R.,	Patterson,	Pierce,	1895
Avary, Arch.,	Atlanta,	Fulton,	1887
Avary, J. C.,	Atlanta,	Fulton,	1889
Bacon, W. W.,	Albany,	Dougherty,	1890
Bailey, J. W.,	Gainesville,	Hall,	1861
Baird, Jas. B., (S., O.)	Atlanta,	Fulton,	1872
Baldwin, M. A.,	Cuthbert,	Randolph,	1890
Barnum, R. E. L.,	Savannah,	Chatham,	1892
Barron, R. B., (V-P.)	Macon,	Bibb,	1884

Name.	Post-office.	County.	Admitted.
Battey, H. H.,	Rome,	Floyd,	1882
Battey, W. W.,	Augusta,	Richmond,	1896
Bedingfield, S. T.,	Union,	Stewart,	1894
Bell, A. K.,	Madison,	Morgan,	1889
Belt, L. J.,	Herndon,	Burke,	1888
Benedict, S. C., (o.)	Athens,	Clarke,	1883
Bizzell, B. W.,	Atlanta,	Fulton,	1894
Black, A. H.,	Thomaston,	Upson,	1893
Blain, Arthur C.,	Macon,	Bibb,	1890
Blalock, W. J.,	Atlanta,	Fulton,	1894
Blanton, G. W.,	Brunswick,	Glynn,	1893
Bloomfield, Jas. C.,	Athens,	Clarke,	1890
Bosworth, Don B.,	Atlanta,	Fulton,	1894
Boyd, Montague L., (v-p.)	Savannah,	Chatham,	1889
Boyd, A. F.,	Iric,	Bullock,	1891
Bozeman, E. K.,	Forsyth,	Monroe,	1892
Brigham, J. C.,	Girard,	Burke,	1891
Brown, H. A.,	Fort Valley,	Houston,	1891
Brown, M. S.,	Fort Valley,	Houston,	1894
Bruce, W. W.,	Thomasville,	Thomas,	1881
Bryan, J. A.,	Gillsville,	Hall,	1894
Bryans, R. G.,	Jackson,	Henry,	1890
Bryant, W. J.,	Summerville,	Chattooga,	1892
Buford, O. H.,	Cartersville,	Bartow,	1891
Burdett, J. R.,	Tennille,	Washington,	1889
Burford, R. E. L.,	Brunswick,	Glynn,	1890
Burt, A. Moody,	Sparta,	Hancock,	1896
Bush, E. B.,	Colquitt,	Milner,	1895
Butler, P. M.,	Atlanta,	Fulton,	1894
Butts, R. M.,	Gordon,	Wilkinson,	1892
Calhoun, A. T.,	Cartersville,	Bartow,	1894
Calhoun, A. W. (v-p., c., p.)	Atlanta,	Fulton,	1874
Calhoun, F. R., (v-p.)	Cartersville,	Bartow,	1873
Callaway, E.,	LaGrange,	Troup,	1895
Callaway, J. A.,	Milledgeville,	Baldwin,	1882
Campbell, J. L.,	Atlanta,	Fulton,	1894
Cato, F. L.,	De Soto,	Sumter,	1893
Cato, R. E.,	Americus,	Sumter,	1893
Champion, W. L.,	Atlanta,	Fulton,	1894
Chason, J. D.,	Iron City,	Decatur,	1895
Chason, Thomas,	Donaldsonville,	Decatur,	1895
Cheatham, W. B.,	Dawson,	Terrell,	1880
Childs, J. A.,	Atlanta,	Fulton,	1894
Cickey, D. C.,	Macon,	Bibb,	1894

Name.	Post-office.	County.	Admitted.
Clark, B. J.,	Barnesville,	Pike,	1896
Clark, M. A.,	Barnesville,	Pike,	1893
Clark, P. S.,	Darien,	McIntosh,	1890
Cole, J. F.,	Carrollton,	Carroll,	1884
Coleman, Thos. D.,	Augusta,	Richmond,	1891
Collins, Katherine R.,	Atlanta,	Fulton,	1894
Comas, P. H.,	Baxley,	Appling,	1889
Connelly, E. L., (C.)	Atlanta,	Fulton,	1860
Cooper, Hunter P.,	Atlanta,	Fulton,	1894
Corson, E. R.,	Savannah,	Chatham,	1895
Cortelyou, P. R., (V-P.)	Marietta,	Cobb,	1887
Cotter, R. O.,	Macon,	Bibb,	1882
Coursey, W. D.,	Lyons,	Tatnall,	1894
Cox, R. P.,	Rome,	Floyd,	1891
Cox, W. J.,	Flovilla,	Butts,	1894
Crawford, A. H.,	Abbeville,	Wilcox,	1893
Crawford, J. M.,	Atlanta,	Fulton,	1888
Crawford, O. G.,	Sasser,	Terrell,	1893
Crowley, J. G.,	Milledgeville,	Baldwin,	1893
Crow, W. A.,	Atlanta,	Fulton,	1892
Crozier, J. H.,	Cedar Springs,	Early,	1889
Culpepper, W. F.,	Senoia,	Coweta,	1892
Currie, M. L.,	Ailey,	Montgomery,	1890
Crumley, W. F.,	Oglethorpe,	Macon,	1892
Danforth, A. R.,	Atlanta,	Fulton,	1894
Darby, J. I.,	Americus,	Sumter,	1893
Davidson, A. A.,	Augusta,	Richmond,	1896
Davidson, A. C.,	Sharon,	Taliaferro,	1887
Davis, E. C.,	Atlanta,	Fulton,	1894
Davis, Jeff.,	Toccoa,	Habersham,	1893
Davis, T. B.,	Newnan,	Coweta,	1892
Davis, Wm. L.,	Albany,	Dougherty,	1893
Dean, J. G.,	Dawson,	Terrell,	1889
Dean, W. L.,	Woodstock,	Cherokee,	1894
Divine, K. C.,	Atlanta,	Fulton,	1882
Doster, B. R., (V-P.)	Blakely,	Early,	1873
Doster, B. R., Jr.,	Blakely,	Early,	1896
Doughty, Henry Campbell	Augusta,	Richmond,	1896
Doughty, Wm. H., (C.)	Augusta,	Richmond,	1857
Doughty, Wm. H., Jr. (V-P.)	Augusta,	Richmond,	1880
Douglass, J. E.,	Cuthbert,	Randolph,	1889
Dozier, R. T.,	Coleman,	Randolph,	1893
Drewry, T. E.,	Griffin,	Spalding,	1892
Dudley, M. J.,	Sonoraville,	Gordon,	1880

Name.	Post-office.	County.	Admitted.
Duggan, J. H.,	Stephensville,	Wilkinson,	1884
Duncan, J. W.,	Atlanta,	Fulton,	1883
Duncan, Wm.,	Savannah,	Chatham,	1868
Dunwoody, J. A., (V-P.)	Brunswick,	Glynn,	1888
Earnest, J. G.,	Atlanta,	Fulton,	1882
Elkin, W. S.,	Atlanta,	Fulton,	1882
Elliott, W. H., (P.)	Savannah,	Chatham,	1884
Ellis, S. T.,	Rives,	Dawson,	1896
Eve, Robert C.,	Augusta,	Richmond,	1894
Felder, L. A.,	Atlanta,	Fulton,	1894
Field, J. C.,	Oglethorpe,	Macon,	1889
Fitts, W. L.,	Carrollton,	Carroll,	1890
Folks, G. P.,	Waycross,	Ware,	1890
Fort, R. W.,	Atlanta,	Fulton,	1896
Foster, Eugene (V-P., C., P.)	Augusta,	Richmond,	1875
Freeman, S. H.,	Dacula,	Gwinnett,	1891
Fulcher, M. O.,	Waynesboro,	Burke,	1895
Gann, Wm. F.,	Columbus,	Muscogee,	1891
Gantier, W. T.,	Columbus,	Muscogee,	1892
Garland, J. T.,	Hillsboro,	Jasper,	1889
Garlington, T. R.,	Rome,	Floyd,	1893
Gaston, J. McF.,	Atlanta,	Fulton,	1884
Gaston, J. McF., Jr.,	Atlanta,	Fulton,	1894
Gaulden, Samuel S.,	Quitman,	Brooks,	1892
Gerdine, John, (C., V-P.)	Athens,	Clarke,	1882
Gheesling, J. H.,	Greensboro,	Greene,	1891
Gill, H. L.,	Columbus,	Muscogee,	1894
Gilmer, Wm. B.,	Macon,	Bibb,	1893
Goldin, W. F.,	Draketown,	Haralson,	1894
Goldsmith, W. S.,	Atlanta,	Fulton,	1893
Goodrich, E. C., (T.)	Augusta,	Richmond,	1876
Googe, W. R.,	Abbeville,	Wilcox,	1892
Goolsby, R. C.,	Juliette,	Monroe,	1891
Goss, I. H.,	Athens,	Clarke,	1877
Grandy, L. B.,	Atlanta,	Fulton,	1893
Green, C. C.,	Atlanta,	Fulton,	1887
Green, S. H.,	Oakdale,	Fulton,	1892
Greenwood, T. M.,	Mineral Bluff,	Fannin,	1894
Griggs, R. E.,	Columbus,	Muscogee,	1892
Griggs, J. W.,	West Point,	Troup,	1892
Grimes, Geo. J.,	Columbus,	Muscogee,	1872
Guian, J. A.,	Conyers,	Rockdale,	1896
Hagan, Hugh,	Atlanta,	Fulton,	1892
Hamilton, C.,	Rome,	Floyd,	1894

Name.	Post-office.	County.	Admitted.
Hammond, R. A.,	Logansville,	Walton,	1894
Hancock, Thos. H.,	Atlanta,	Fulton,	1896
Harbin, R. M.,	Rome,	Floyd,	1894
Hardman, L. G.,	Harmony Grove,	Jackson,	1877
Hardman, W. B.,	Harmony Grove,	Jackson,	1892
Hardon, Virgil O., (o.)	Atlanta,	Fulton,	1886
Harison, W. H., Jr.,	Augusta,	Richmond,	1886
Harris, E. A.,	Midville,	Burke,	1893
Harris, R. B.,	Savannah,	Chatham,	1885
Hart, C. C.,	Cross Keys,	DeKalb,	1888
Hawkins, A. M. F.,	Ball Ground,	Cherokee,	1891
Hawes, A. S.,	Elberton,	Elbert,	1895
Head, J. M.,	Zebulon,	Pike,	1883
Henderson, J. R.,	Sun Hill,	Washington,	1884
Herrman, J. D.,	Eastman,	Dodge,	1884
Hicks, Chas. C., (c.)	Dublin,	Laurens,	1884
Hiers, J. L.,	Savannah,	Chatham,	1895
Hill, J. J.,	Washington,	Wilkes,	1880
Hillsman, P. L.,	Albany,	Dougherty,	1871
Hobbs, A. G.,	Atlanta,	Fulton,	1882
Holliday, W. Z.,	Augusta,	Richmond,	1884
Holmes, J. B. S., (v-p., p.)	Atlanta,	Fulton,	1872
Holt, W. F., (v-p., p.)	Macon,	Bibb,	1867
Hood, J. W.,	Atlanta,	Fulton,	1894
Hopkins, J. G., (c.,)	Thomasville,	Thomas,	1890
Horine, Geo. S.,	Americus,	Sumter,	1893
Horrocks, J. Marion,	Thomasville,	Thomas,	1893
Horsley, J. S.,	West Point,	Troup,	1894
Horsley, J. S., Jr.,	West Point,	Troup,	1896
Howell, Dan H., (s.)	Atlanta,	Fulton,	1878
Hubbard, T. V.,	Atlanta,	Fulton,	1896
Hudson, P. L.,	Cochran,	Pulaski,	1896
Humphries, J. R.,	Acworth,	Cobb,	1876
Humphries, W. C.,	Acworth,	Cobb,	1890
Hurt, Chas. D.,	Atlanta,	Fulton,	1890
Hutchins, M. B.,	Atlanta,	Fulton,	1892
Jarnagin, W. C.,	Atlanta,	Fulton,	1882
Jefferson, Wesley,	Buena Vista,	Marion,	1892
Jelks, E. L.,	Hawkinsville,	Pulaski,	1896
Jelks, N. P.,	Hawkinsville,	Pulaski,	1882
Johnson, C. Evans,	Atlanta,	Fulton,	1892
Johnson, J. C.,	Atlanta,	Fulton,	1894
Johnson, J. C.,	Macon,	Bibb,	1875
Johnson, L. M.,	Rowland,	Upson,	1893

Name.	Post-office.	County.	Admitted.
Jones, Louis H.,	Atlanta,	Fulton,	1890
Jones, L. M.,	Milledgeville,	Baldwin,	1880
Jones, R. D.,	Summerville,	Chattooga,	1892
Jones, T. S.,	Jeffersonville,	Twiggs,	1893
Keaton, P. H.,	Damascus,	Early,	1889
Kelley, T. J.,	Indian Spring,	Butts,	1884
Kelly, J. M.,	Griffin,	Spalding,	1885
Kendrick, R. T.,	Alapaha,	Berrien,	1891
Kendrick, W. S., (o.)	Atlanta,	Fulton,	1874
Kenyon, O. T.,	Weston,	Webster,	1892
Kime, R. R.,	Atlanta,	Fulton,	1892
King, J. C.,	Newnan,	Coweta,	1896
Lancaster, J. F.,	Forsyth,	Monroe,	1884
Lane, L. P.,	Stillmore,	Emanuel,	1895
Lanier, Sidney J.,	Savannah,	Chatham,	1890
LeHardy, J. C., (T., V-P.)	Savannah,	Chatham,	1868
Lockhardt, V. D.,	Homer,	Banks,	1891
Love, T. D.,	Atlanta,	Fulton,	1887
Lovorn, J. L.,	Bowden,	Carroll,	1894
Lovorn, R. M.,	Bowden,	Carroll,	1896
Lyle, W. C.,	Augusta,	Richmond,	1896
McDaniel, J. L.,	Atlanta,	Fulton,	1896
McDonald, C. M.,	Leesburg,	Lee,	1892
McDuffie, Jas. H.,	Columbus,	Muscogee,	1893
McHatton, H., (C., V-P.)	Macon,	Bibb,	1883
McIntosh, P. A.,	Thomasville,	Thomas,	1893
McIntosh, T. M.,	Thomasville,	Thomas,	1874
McKinnon, J. K.,	White Oak,	Camden,	1895
McKown, J. A.,	Jonesboro,	Clayton,	1891
McKown, T. D.,	Chickamauga,	Walker,	1887
McLeod, R. D.,	Lyons,	Montgomery,	1893
McMaster, D. E.,	Munnerlyn,	Burke,	1894
McMaster, H. B., (C.)	Waynesboro,	Burke,	1888
McRae, A. B.,	Seville,	Wilcox,	1893
McRae, F. W.,	Atlanta,	Fulton,	1887
Mallory, R. A.,	Concord,	Pike,	1893
Maloy, John K.,	Milan,	Telfair,	1890
Maloy, W. C.,	Rhine,	Dodge,	1893
Malone, J. D.,	Marietta.	Cobb,	1891
Manderville, J. T.,	Cuthbert,	Randolph,	1894
Martin, J. D.,	Savannah,	Chatham,	1894
Mathis, A.,	Macon,	Bibb,	1872
Matthews, S. M.,	Quitman,	Brooks,	1890

Name.	Post-office.	County.	Admitted.
Matthews, W. J.,	Tignall,	Wilkes,	1892
May, W. F.,	Savannah,	Chatham.	1894
Merritt, Thos. M.,	Calvary,	Decatur,	1895
Miller, G. T., (V-P.)	Americus,	Sumter,	1892
Miller, R. L.,	Hephzibah,	Richmond,	1891
Mitchell, T. Emerson,	Columbus,	Muscogee,	1896
Mobley, H. A.,	Byronville,	Dooly,	1891
Monroe, Henry S.,	Ellaville,	Schley,	1893
Montgomery, Chas. J.	Augusta,	Richmond,	1895
Mooney, H. R.,	Hagan,	Bryan,	1891
Moore, K. P., (V-P., P., S., O., T.)	Macon,	Bibb,	1871
Mooreland, A. C.,	Forsyth,	Monroe,	1892
Moran, C. A.,	Atlanta,	Fulton,	1895
Morgan, J. B., (V-P.)	Augusta,	Richmond,	1891
Mulligan, G. W., (V-P., P.)	Washington,	Wilkes,	1883
Neal, J. W.,	Scotland,	Telfair,	1892
Nichols, D. N.,	Laston,	Bulloch,	1891
Nicolson, Wm. Perrin,	Atlanta,	Fulton,	1883
Niles, Geo. M.,	Marshallville,	Macon,	1893
Nisbet, D. B.,	Eatonton,	Putnam,	1894
Noble, G. H., (P.)	Atlanta,	Fulton,	1883
Nunn, R. J., (C., V-P., P.)	Savannah,	Chatham,	1867
O'Daniel, Mark H., (O., C., V-P.)	Macon,	Bibb,	1882
O'Daniel, William, (T., P.)	Bullard,	Twiggs,	1870
O'Daniel, W. A., (O.)	Milledgeville,	Baldwin,	1886
Olmsted, J. C.,	Atlanta,	Fulton,	1886
Owens, W. W.,	Savannah,	Chatham,	1891
Paige, John D.,	Savannah,	Chatham,	1892
Patten, W. L.,	Milltown,	Berrien,	1895
Patterson, F. D.,	Cuthbert,	Randolph,	1892
Patterson, J. C.,	Milledgeville,	Baldwin,	1894
Pattillo, John T.,	West Point,	Troup,	1892
Parks, W. B.,	Atlanta,	Fulton,	1882
Payne, Geo. F.,	Atlanta,	Fulton,	1894
Peete, C. H.,	Macon,	Bibb,	1893
Pendergrass, J. B.,	Jefferson,	Jackson,	1883
Perdue, H.,	Barnesville,	Pike,	1889
Petrie, C. B.,	Athens,	Clarke,	1894

Name.	Post-office.	County.	Admitted.
Phillips, S. Latimer,	Savannah,	Chatham,	1890
Poland, S. B.,	Griswoldville,	Jones,	1891
Ponder, W. P.,	Forsyth,	Monroe,	1885
Poole, W. H.,	Douglasville,	Douglas,	1894
Poore, J. J.,	Monroe,	Walton,	1894
Powell, B. C.,	Villa Rica,	Carroll,	1896
Powell, John F.,	Kramer,	Wilcox,	1893
Powell, T. O., (P.)	Milledgeville,	Baldwin,	1867
Purse, B. S.,	Savannah,	Chatham,	1895
Purse, M. A.,	Atlanta,	Fulton,	1894
Quarterman, K. A.,	Walthourville,	Liberty,	1885
Quillian, D. D.,	Athens,	Clarke,	1892
Quillian, H. P.,	Arp,	Banks,	1888
Quinn, C. T.,	Naylor,	Lowndes,	1893
Ramsaur, D. H.,	Rome,	Floyd,	1888
Read, J. B.,	Savannah,	Chatham,	1851
Rhodes, P. M.,	Taylorville,	Bartow,	1894
Richardson, C. H.,	Montezuma,	Macon,	1886
Richardson, E. H., (O., C., V-P.)	Atlanta,	Fulton,	1878
Ridding, J. H.,	Waycross,	Ware,	1893
Ridley, F. M., (O., C., P.)	LaGrange,	Troup,	1887
Ridley, R. B.,	Atlanta,	Fulton,	1887
Roberts, J. B., (V-P.)	Sandersville,	Washington,	1875
Rogers, W. T.,	Coleman,	Randolph,	1893
Roper, L. E.,	Lula,	Hall,	1894
Rose, E. P.,	Valdosta,	Lowndes,	1893
Ross, James T.,	Macon,	Bibb,	1891
Rowland, A. A.,	Brunswick,	Glynn,	1890
Roy, Dunbar,	Atlanta,	Fulton,	1892
Roy, G. G.,	Atlanta,	Fulton,	1878
Royal, A. R.,	Abbeville,	Wilcox,	1892
Rumble, S.,	Goggins,	Monroe,	1891
Scarborough, J. F.,	Tippettville,	Dooly,	1893
Scott, H. F., (O.,)	Atlanta,	Fulton,	1879
Selman, J. L.,	Douglasville,	Douglas,	1894
Sessoms, W. C.,	Nicholls,	Coffee,	1893
Sewell, J. R.,	Walnut Hill,	Franklin,	1894
Shannon, John R.,	Cabaniss,	Monroe,	1893
Shepard, Chas. C.,	Macon,	Bibb,	1895
Shorter, James H.,	Macon,	Bibb,	1893
Sibbett, W. F.,	Douglas,	Coffee,	1890

Name.	Post-office.	County.	Admitted.
Sims, E. H.,	Columbus,	Muscogee,	1892
Sims, J. H.,	Columbus,	Muscogee,	1892
Simmons, A. B.,	Savannah,	Chatham,	1891
Simpson, J. R.,	Atlanta,	Fulton,	1894
Simpson, W. T.,	Smithville,	Lee,	1892
Singleton, O. G.,	Fort Valley,	Houston,	1892
Slack, Henry R.,	LaGrange,	Troup,	1893
Smith, A. A., (V-P., P.,)	Hawkinsville,	Pulaski,	1875
Smith, B. F.,	Elberton,	Elbert,	1893
Smith, C. D.,	Atlanta,	Fulton,	1894
Smith, C. H.,	Ellaville,	Schley,	1893
Smith, H. J.,	Blackshear,	Pierce,	1887
Sorrells, R. P.,	Athens,	Clarke,	1887
Spears, W. T.,	Rutledge,	Morgan,	1894
Spence, J. M., Jr.,	Waresboro,	Ware,	1890
Spier, C. P.,	Wadley,	Jefferson,	1886
Standifer, W. B.,	Blakely,	Early,	1886
Stephens, L. P.,	Atlanta,	Fulton,	1888
Stirling, A. W.,	Atlanta,	Fulton,	1896
Stevens, V. P.,	Putnam,	Marion,	1892
Stewart, J. F.,	Griffin,	Spalding,	1892
Stewart, W. W.,	Columbus,	Muscogee,	1892
Stockard, C. C.,	Atlanta,	Fulton,	1896
Stone, George H.,	Savannah,	Chatham,	1875
Stovall, A. S. J.,	Elberton,	Elbert,	1886
Strother, William A.,	Albany,	Dougherty,	1867
Sullivan, J. S.,	Macon,	Bibb,	1893
Taliaferro, V. H.,	Atlanta,	Fulton,	1894
Tankersley, J. S.,	Ellijay,	Gilmer,	1894
Tarver, F. E.,	Augusta,	Richmond,	1891
Tate, William B., (V-P.)	Tate,	Pickens,	1890
Taylor, A. P.,	Thomasville,	Thomas,	1873
Taylor, J. P.,	Haralson,	Coweta,	1859
Taylor, R. H., (V-P., S.)	Griffin,	Spalding,	1879
Terrell, E. B.,	Greenville,	Meriwether	1891
Terrell, H. W.,	Glenwood,	Montgomery,	1892
Terrell, W. W.,	Greenwood,	Henry,	1893
Thomas, F. B.,	Americus,	Sumter,	1893
Thomas, J. M.,	Atlanta,	Fulton,	1894
Thompson, P. H.,	Bluffton,	Clay,	1886
Todd, J. S., (O., C., P.)	Atlanta,	Fulton,	1872
Trimble, G. C.,	East Point,	Fulton,	1891
Tye, R. L.,	McDonough,	Henry,	1887
Tyson, J. D.,	Adrian,	Emanuel,	1893

Name.	Post-office.	County.	Admitted.
Van Goidtsnoven, E.,	Atlanta,	Fulton,	1887
Vanhorne, J. T.,	Monroe,	Walton,	1892
Walker, J. L.,	Waycross,	Ware,	1882
Walker, W. F.,	Dranesville,	Marion,	1892
Wall, H. A.,	Bronwood,	Terrell,	1892
Wallace, F. R.,	Cordele,	Dooly,	1895
Weaver, J. A.,	Buena Vista,	Marion,	1890
Weaver, J. D.,	Eatonton,	Putnam,	1894
Webb, C. S.,	Atlanta,	Fulton,	1892
Welchel, John E.,	Gillsville,	Hall,	1891
Westmoreland, W. F., (O., P.)	Atlanta,	Fulton,	1881
Whelchel, C. C.,	Comer,	Hall,	1891
Whitaker, J. M.,	Milledgeville,	Baldwin,	1883
Whitehead, A. G., (V-P., P.)	Waynesboro,	Burke,	1861
Wilcox, G. A.,	Augusta,	Richmond,	1896
Williams, G. B.,	Tallokas,	Brooks,	1893
Williams, W. P.,	Blackshear,	Pierce,	1890
Williams, H. J., (O.)	Macon,	Bibb,	1880
Wills, T. J.,	Danielsville,	Madison,	1889
Wimberly, John S.,	Sanford,	Stewart,	1891
Winchester, E. A.,	Desoto,	Sumter,	1893
Winchester, J. H.	Americus,	Sumter,	1893
Winchester, W. R.,	Macon,	Bibb,	1883
Wise, B. T.,	Plains,	Sumter,	1893
Wolff, Bernard,	Atlanta,	Fulton,	1894
Wood, W. E.,	Dalton,	Whitfield,	1891
Wright, Jas. B.,	Augusta,	Richmond,	1896
Wright, Thos. R.,	Augusta,	Richmond,	1880

NON-RESIDENTS.

Name.	Post-office.	County.	Admitted.
Gann, Dewell,	Benton,	Arkansas,	1887
Glass, J. M.,	Opelika,	Alabama,	1894
Mitchell, Thos. S.,	Eufaula,	Alabama,	1892
Perry, Thos. B.,	U.S.M.H Buffalo	New York,	1891
Prather, W. B.,	Seale,	Alabama,	1894

HONORARY LIST.

This list is designed for aged, retired, or infirm members of the Association, who are entitled to all the privileges of the Association, without the payment of dues.

The Secretary would be obliged to members to report any names that should go on this list.

Name.	Post-office.	County.	Admitted.
Alexander, J. F. (P., C., V-P.)	Atlanta,	Fulton,	1849
Battle, H. L.,	Wadley,	Jefferson,	1891
Bardwell, E. L.,	Talbotton,	Talbot,	1872
Beasley, James,	West Point,	Troup,	1849
Bell, A. A.,	Madison,	Morgan,	1858
Brantley, S. D.,	Sandersville,	Washington,	1849
Brawner, W. M.,	Lexington,	Oglethorpe,	1883
Colding, C. H.,	Savannah,	Chatham,	1882
Coleman, J. T.,	Perry,	Houston.	1851
Griggs, A. W. (O., V-P., C., P.)	West Point,	Troup,	1866
Hopkins, T. S.,	Thomasville,	Thomas,	1865
Hoyt, W. D.,	Rome,	Floyd,	1872
Leitner, C. B.,	Columbus,	Muscogee,	1852
Love, Wm. Abram, (V-P.)	Atlanta,	Fulton,	1866
Smith, J. B.,	Perry,	Houston,	1871

In Memoriam.

☞ Special Request to Every Member.—The Secretary *earnestly requests each member of the Association* to aid him *in filling* the blanks in the following Roll of Deceased Members *by making the necessary inquiries* in their respective cities and counties, *and writing him at once* on obtaining the desired information.

Name.	Post-office.	County.	Admitted.	Died.
Adams, C. B.	Augusta	Richmond	1868	1875
Alexander, J. R.	Cave Springs	Floyd	1849	
Alexander, L. B.	Forsyth	Monroe	1877	1891
Alfriend, E. W. (v-p.)	Albany	Dougherty	1852	1886
Armstrong, W. S.,	Atlanta,	Fulton	1886	1896
Arnold, R. D. (v-p., p.)	Savannah	Chatham	1849	1876
Ashworth, A. B. (s.)	Atlanta	Fulton	1887	1889
Avary, J. C.	Decatur	DeKalb	1859	1873
Baker, A. H.	Augusta	Richmond	1876	1891
Ballinger, M. R.	Floyd Springs	Floyd	1860	1886
Banks, J. T. (v-p., p.)	Griffin	Spalding	1858	1880
Barkwell, T. J.	Hawkinsville	Pulaski	1859	
Barnett, J. W.	Raytown	Taliaferro	1880	1890
Batey, Robert, (c., p.)	Rome	Floyd	1859	1895
Battle, H. L.	Russellville	Monroe	1849	
Bell, T. W.	Busbyville	Houston	1853	
Bignon, H. A.	Augusta	Richmond	1852	1870
Billing, S. A.	Columbus	Muscogee	1855	1872
Bizzell, W. D. (v-p.)	Atlanta	Fulton	1882	1890
Black, R. C. (t.)	Augusta	Richmond	1852	1860
Bomar, B. F.	Atlanta	Fulton	1859	
Borcheim, L. E.	Atlanta	Fulton	1886	1887
Boswell, S. J. (v-p.)	Columbus	Muscogee	1855	
Bothwell, D. J.	Vienna	Dooly	1849	
Bozeman, J. F.	Atlanta	Fulton	1855	1877
Boring, John M. (v-p.)	Atlanta	Fulton	1856	1891
Brandon, D. S.	Thomasville	Thomas	1873	1878
Broadhurst, W. W.	Augusta	Richmond	1852	1861
Bruce, R. J.	Thomasville	Thomas	1874	1878
Bunn, William	Wilna	Houston	1854	
Burgess, Wm. R. (t., o.)	Macon	Bibb	1870	1878
Burney, S. W. (p.)				1876

Name.	Post-office.	County.	Admitted.	Died.
Campbell, Robert	Augusta	Richmond	1849	1885
Carroll, J. C.	Laurens Hill	Laurens	1857	1870
Carroll, R. C.	Augusta	Richmond	1873	1882
Carter, C. J.	Lake Park	Lowndes	1889	1893
Castlen, F. G.	Macon	Bibb	1867	1874
Carlton, J. M.	Athens	Clarke	1882	1883
Charlton, T. J. (C.)	Savannah	Chatham	1862	1886
Charters, W. M. (P.)	Savannah	Chatham	1851	1883
Chase, D. S.	Augusta	Richmond	1862	
Clark, S. B.	Rich. Factory	Richmond	1852	
Campbell, H. F. (O, V-P, P.)	Augusta	Richmond	1851	1892
Coe, J. N.	Flat Rock	Pike	1856	
Coleman, John S.	Augusta	Richmond	1891	1892
Colley, F. S. (P.)	Monroe	Walton	1856	
Cooper, G. F. (O., S., V-P.)	Sumter	Americus	1849	1882
Copeland, A. B.	Hamilton	Harris	1878	1882
Cornwall, G. H.	Hillsboro	Jasper	1854	
Crawford, S. S.	Augusta	Richmond	1857	
Crump, E. D.	Herndon	Burke	1872	1881
Cumming, H. M.	Augusta	Richmond	1862	1887
Cunningham, L. S.	Big Creek	Forsyth	1859	1862
Cunningham, W. D.	Jasper	Pickens	1859	1866
D'Alvigney, N.	Atlanta	Fulton		1877
Davenport, C. W.	Point Peter	Oglethorpe	1852	
Davenport, H. S.	Calhoun	Gordon	1859	
Davis, W. L.	Albany	Dougherty	1849	
Dean, S. H.	Conyers	Rockdale	1856	
Dearing, W. E.	Augusta	Richmond	1852	1867
DeCortez, C. A.	Savannah	Chatham	1872	
Dickinson, J. T.	Albany	Dougherty	1857	
Dickinson, R. Q. (V-P., P.)	Albany	Dougherty	1850	
Dobbins, W. O.	Fort Gaines	Clay	1883	1890
Dugas, L. A. (P.)	Augusta	Richmond	1852	1884
Dupree, L. J.	Camilla	Mitchell		1890
Engram, R. G.	Montezuma	Macon	1881	1893
Eve, Jos. A.	Augusta	Richmond	1852	1886
Eve, S. C.	Augusta	Richmond	1868	1884
Felder, W. L.	Augusta	Richmond	1857	1867
Fish, J. D. (T.)	Savannah	Chatham	1875	1879
Fitzgerald, E.	Macon	Bibb	1882	1885
Ford, L. D. (P.)	Augusta	Richmond	1849	1884
Fort, Moses T.	Hawkinsville	Pulaski	1859	1878

Name.	Post-office.	County.	Admitted.	Died.
Franklin, M. A.	Macon	Bibb	1849	1858
Frazier, W. M.	Hawkinsville	Pulaski	1850	
Gaither, Henry.	Oxford	Newton	1851	1890
Gaither, B. T.	Oxford	Newton	1852	1853
Gardner, J. W.	Augusta	Richmond.	1857	
Girardy, Edward	Augusta	Richmond.	1852	1859
Gordon, J. M.	Savannah	Chatham	1849	
Gray, James A. S.	Atlanta	Fulton	1882	1887
Gray, S. H.	Barnesville	Pike	1871	1885
Green, A. B.	Pond Town	Sumter	1849	
Green, H. K.	Macon	Bibb	1849	1867
Green, Thomas F.	Milledgeville	Baldwin	1849	1879
Gregory, J. D.		Sumter	1849	
Grimes, T. W.	Columbus	Muscogee	1855	1882
Habersham, J. C.	Savannah	Chatham	1853	
Habersham, J.C.Jr. (V-P)	Savannah	Chatham	1866	1881
Habersham, S. E.	Eatonton	Putnam	1870	
Hammond, D.W. (V-P., C)	Macon	Bibb	1857	1887
Harden, W. P.	Harmony Grove	Jackson	1852	1885
Harrell, W. J.	Bainbridge	Decatur	1874	1881
Harris, S. N. (V-P.)	Savannah	Chatham	1851	1854
Harris, N. O.	Atlanta	Fulton	1887	1896
Harrison, Gabriel	Macon	Bibb		1862
Harris, Juriah (O. V-P.)	Savannah	Chatham	1852	1876
Havis, M. W.	Perry	Houston	1854	1890
Hart, A. C.	Waynesboro	Burke	1852	
Hawes, E. C.	Appling	Columbia	1852	
Hawkins, S. B.	Americus	Sumter	1871	1892
Heard, T. O.	Griffin	Spalding	1867	
Hendrick, J. B.	Covington	Newton	1857	1881
Henry, G. C.	West Point	Troup	1872	
Hook, E. B.	Augusta	Richmond.	1857	1862
Houston, J. P. R.	Savannah	Chatham	1873	1892
Hoxey, Thomas	Columbus	Muscogee	1849	1853
Hollingsworth, W. T.	Madison	Morgan	1857	1893
Holmes, G.W. (V-P., P., C.)	Rome	Floyd	1867	1890
Holmes, T. M. (O.)	Rome	Floyd	1883	1891
Hamilton, J. L.	Stone Mountain	DeKalb	1859	1890
Hunter, E. H. W.	Louisville	Jefferson	1857	1883
Ingraham, E. P.	Albany	Dougherty	1870	1873
Irvine, Robert	Augusta	Richmond	1880	1881
Johnson, C. W.	Macon	Bibb	1870	1875
Johnson, John M.	Atlanta	Fulton	1866	1886

Name.	Post-office.	County.	Admitted.	Died.
Jones, B. O.	Atlanta	Fulton		
Jones, J. W.	Atlanta	Fulton	1857	1871
Kennedy, L. P.	Atlanta	Fulton	1890	1892
Kennebrew, Henry	Athens	Clarke	1883	1886
Kirkscey, E. J. (V-P.)	Columbus	Muscogee	1871	1877
Kollock, P. M. (P.)	Savannah	Chatham	1852	1872
Lamar, T. R. (V-P.)	Macon	Bibb	1849	1859
Lackhart, R. H.	Columbus	Muscogee	1855	1859
Lattimer, C. T.	Macon	Bibb	1889	1889
Lawrence, L. L.	Blountsville	Jones	1889	1890
Lightfoot, W. S.	Macon	Bibb	1849	1864
Long, Crawford W.	Athens	Clarke	1849	1878
Logan, J. P. (P.)	Atlanta	Fulton	1858	1891
Lumpkin, George	Maxey's Depot	Oglethorpe	1859	
Lumpkin, S. P.	Watkinsville	Clarke	1859	
Mackie, J. D.	Augusta	Richmond	1852	1854
Maffit, R. G. W.	Dalton	Whitfield	1859	
Matthews, W. B.	Fort Valley	Houston	1884	1885
McBride, W. G.	Oconee	Washington	1850	1873
McDowell, J. M.	Barnesville	Pike	1887	1891
McGolrick, R.	Macon	Bibb	1849	1853
McKinley, C. A.	Newnan	Coweta	1859	
McMillan, J. E.	Columbus	Muscogee	1872	1883
Means, A. (V-P.)	Oxford	Newton	1851	1883
Means, O. S.	Oxford	Newton	1857	
Meiere, William S.	Madison	Morgan	1857	
Milam, R. J.	Fairburn	Campbell	1882	1882
Miller, H. V. M.	Atlanta	Fulton	1851	1896
Morrison, D. H.	Savannah	Chatham	1868	1869
Musgrove, W. C. (C., S.)	Midville	Burke	1849	1876
Nash, R. A.	Marion	Twiggs	1849	
Nisbet, R. H.	Eatonton	Putnam	1854	1873
Noell, S. G.	Ypsilanti	Talbot	1892	1892
Nottingham, C. B. (S, T, C, P)	Macon	Bibb	1849	1875
Nunn, R. M.	Savannah	Chatham	1871	1873
Ogilby, H. J. (V-P.)	Madison	Morgan	1849	1873
O'Keefe, D. C. (S.)	Atlanta	Fulton	1852	1871
Orme, L. H. (S.)	Atlanta	Fulton	1866	1872
O'Sullivan, ——	Cork	Lee	1849	
Owen, J. D.		Baldwin	1850	
Parsons, J. M.	Russellville	Monroe	1845	
Pitts, G. W.	Star	Butts	1859	

Name.	Post-office.	County.	Admitted.	Died.
Posey, J. F.	Savannah	Chatham	1851	
Powell, T. S., (V-P.)	Atlanta	Fulton	1857	1896
Pringle, W.	Covington	Newton		
Ragan, Isham H.	Palmyra	Lee	1856	
Raines, Thomas	Atlanta	Fulton	1872	1883
Raines, T. L.	Atlanta	Fulton	1882	1884
Rauschenberg, Christ'n	Atlanta	Fulton	1861	1878
Richardson, C. P.	Savannah	Chatham	1851	1853
Ridley, R. A. T. (V-P.)	LaGrange	Troup	1859	1871
Robertson, J. J.	Washington	Wilkes	1852	1872
Roddy, R. L. (V-P.)	Forsyth	Monroe	1849	1878
Ruffin, W. R.	Augusta	Richmond	1852	
Russell, W. J.	Lawrenceville	Gwinnett	1861	
Ryan, T. D. L.	Hawkinsville	Pulaski	1859	1876
Stafford, S. J.	Madison	Morgan	1856	1859
Searcy, D. B.	Bolingbroke	Monroe	1849	1885
Shropshire, J. W.			1871	
Simmons, J. N.	Atlanta	Fulton	1850	1871
Simmons, J. S.	Gainesville	Hall	1873	1881
Simmons, S. B.	Augusta	Richmond	1852	1867
Simmons, T. A.	Irwinton	Wilkinson	1871	1871
Slaughter, J. T.	Villa Rica		1851	1889
Smith, A. D.	Montezuma	Macon	1871	
Smith, C. W.	Jonesboro	Clayton	1859	
Smith, Hiram	Augusta	Richmond	1876	1888
Smith, H. H.	Augusta	Richmond	1886	1887
Smith R. M. (C.)	Athens	Clarke		1879
Smith, Thomas	Savannah	Chatham	1858	1876
Spier, W. A.	Grantville	Coweta	1859	
Stallings, J. D.	Preston	Webster	1871	
Stanford, F. A.	Columbus	Muscogee	1849	1885
Starr, E. P.	Savannah	Chatham	1868	1873
Steele, H.	Knoxville	Crawford	1849	
Steele, R. T.	Fairburn	Campbell	1849	
Steiner, H. H.	Augusta	Richmond	1857	1892
Stephens, W. B.	Forsyth	Monroe	1849	
Sterling, W. L.	Atlanta	Fulton	1878	1894
Stewardson, Thomas	Savannah	Chatham	1849	
Stozier, L. L.	Albany	Dougherty	1867	
Sutton, C. B.		Lee	1856	
Taliaferro, V. H. (V-P.)	Atlanta	Fulton	1857	1887
Taylor, E. T.	Columbus	Muscogee	1855	
Taylor, R. N.	Hawkinsville	Pulaski	1850	
Thomas, J. G. (V-P, P, C, T.)	Savannah	Chatham	1867	1885

Name.	Post-office.	County.	Admitted.	Died.
Thompson, Charles	Macon	Bibb	1849	1854
Trammell, A. A.	Forsyth	Monroe	1856	
Tucker, O. W.	Brunswick	Glynn	1890	1891
Underwood, J. B.	Cave Spring	Floyd	1860	1881
Van Meter, J. N.	Euharlee	Bartow	1879	1881
Wall, W. W.	Calhoun	Gordon	1860	
Walker, T. F.	Cochran	Pulaski	1859	1888
Walker, F.	Macon	Bibb	1889	1891
Ware, A. E. O.			1859	
Waring, J. J.	Savannah	Chatham	1853	1888
Watson, W. A.	Jefferson	Jackson	1883	1889
Wells, C. H.	Savannah	Chatham	1853	1854
Wells, W. B.	Chattanooga	Tennessee	1873	1891
West, Charles (P.)	Perry	Houston	1849	
West, C. W.	Savannah	Chatham	1853	1859
Westmoreland, W. F. (P)	Atlanta	Fulton	1856	1890
White, S. G., (V-P.)	Milledgeville	Baldwin	1868	1877
Whitlock, Isaac W.	Washington	Wilkes	1852	1853
Wile, Henry	Atlanta	Fulton	1886	1887
Wiley, J. B.	Macon	Bibb	1849	
Williams, T. L.		Dooly	1849	
Williams, W. L.	Fayetteville	Fayette	1873	
Willingham, Willis	Lexington	Oglethorpe	1849	1872
Winn, G. A.	Bolingbroke	Monroe	1849	1862
Wirsen, G. F.	Rutledge	Morgan	1871	1884
Woodson, C. T.	Wilna	Houston	1854	
Wooten, W. H.	Lexington	Oglethorpe	1852	1860
Word, T. J.	Rome	Floyd	1887	1890
Word, R. C.	Atlanta	Fulton	1855	1890
Wragg, J. A.	Savannah	Chatham	1853	
Wright, P. H.	Macon	Bibb	1869	1888
Yonge, Easton	Savannah	Chatham	1880	

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